Online Educational Games' Effects on Learning

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Introduction

Make math fun! But do games really help?

Math is generally a difficult subject for students to learn. It is generally boring and uninteresting for children and discourages them from learning. That is why a common issue in education is making math more fun. To solve this issue, people create math games. Unfortunately, not all the games achieve their goal.

A large problem with education is that it is unclear what students need to learn every year in school. That is why in an effort to standardize the curriculum, the Common Core State Standards (CCSS) were developed. These standards are set up so that every student learns the same things in the same grade regardless of school. We specifically looked at the standards for math for elementary school children.

Our study is investigating how students learn through games. We have put together studies based around a different CCSS; each study contains two games that we will compare, to see what elements of a game have a greater impact on learning.

The study was conducted in two segments. First, students were given a corresponding problem set to do either in class or at home. The problem sets included a few relevant questions, before giving the students an educational game to play relating to the math that they are learning in school (number theory, number sense, etc.). Half of the students would play one game, while the other half played a second. The game was followed by questions similar to those in the first half of the problem set.

Content Selection

> The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy (corestandards.org)

"The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO)" (http://www.corestandards.org/about-the-standards). The standards were formed to provide a common level of education for all children. Each grade level builds upon the previous grades, so students will always learn skills in order, and never have to relearn or learn skills quickly. They also address what students are expected to learn by the time they have graduated high school. They ensure that students make progress each year and graduate appropriately on time.

The following is the list of Math standards that we have used in our study. The first number indicates the grade the standard is taught at, the next set of letters indicates the name of the skill, and the last letter and number indicate the order the skills should be taught in.

Table 1: Common Core State Standards (CCSS)

Standard	Skill	Description
2.NBT.A.3	Numbers and Operations in Base Ten	Read and write numbers to 1,000 using base ten numerals, number names, and expanded form.
3.NBT.A.1	Numbers and Operations in Base Ten	Use place value understanding to round whole numbers to the nearest 10 or 100.
4.NF.A.2	Numbers and Operations-Fractions	Compare two fractions with different numerators and different denominators by creating common denominators or numerators or by comparing to a benchmark fraction such as

		½.
4.NBT.A.3	Numbers and Operations in Base Ten	Use place value understanding to round multi-digit whole numbers to any place.
5.NF.A.1	Numbers and Operations-Fractions	Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
5.NBT.A.3a	Numbers and Operations in Base Ten	Read and write numbers to the thousandths using base ten numerals, number names, and expanded form.
5.NBT.A.4	Numbers and Operations in Base Ten	Use place value understanding to round decimals to any place.
6.NS.B.4	The Number System	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor

Finding Games

Procedure

To start the project, we needed to search for online games for the students to play. After selecting the Common Core Standards that we decided to focus on, we began our search by looking for any games that were related to the subject matter, whether or not they taught the exact skill that was outlined by the Standard. When looking for these games, we had to consider the technology that students and teachers would have to run our studies as homework on an in class assignment. We could not have teachers turn away our study because they couldn't run the study or because it would cost too much to get the technology required. The games would have to be free to play, and require little on the part of the user aside from maybe downloading Flashplayer or Adobe. We decided to focus on computer games, specifically ones that could be played in any internet browser, and did not cost any money or require membership to play.

From this search, we compiled two lists: one that contained games relevant to our standards and one that contained a list of websites that hosted these games. The list of web sites (found in Appendix C) contained the homepage of gaming websites that we found along with our notes about it. When someone in the group found a game of value on a website, if it seemed that the site could be helpful to the others, we stored it on this worksheet. This list was used to minimize searching the entire internet for games when we already had resources available. The list of games was much more detailed. Our final list (Appendix C) contained over 90 games, with notes about each game so that later we would be able to quickly look through the list and remember the game we had looked at. For this list, we needed to record the obvious: what Common Core State Standard the game was related to, and the URL that we could access the game at. We found that some games, although related to the same Standard, taught slightly different material. For example, if the Standard was about teaching students place value, some games taught rounding and showed these words while others asked students directly to write the number in written form. So in addition to the Standard, we created a column to indicate what skills it taught. We also needed to make note of the technical requirements, specifically if there was any download required, or video as part of the game. We had a column for both notes and comments, to write down anything we thought could be useful when looking over the games. The notes box would give factual information about what the game was like, and the comments would be our opinions on the games. Finally, we had a column called categories, which we used to describe the games. Our list of categories was chosen as different game aspects that were common in the games we found, and ones that we thought were important to consider in teaching games. These categories are described below, in the Game Selection heading.

Problems

It isn't hard to search for "math games" on Google and find some activity that is game-like and is somehow related to mathematics. However, finding something that can be considered an educational game to teach a specific mathematics skill is difficult.

Even though it is simple to make or find a math related game, there is a wide variety of

topics that can be covered. The Common Core State Standards that we used for this study ranged from second grade level math to seventh grade level math. Many of the games out there focus on simple math, such as addition and subtraction. Games that use proportions to solve multistep problems, however, are less common. During our search, we needed to sort through the hundreds of math games that were not relevant to us and seek out the ones that pertained to the Standards we had chosen. The difficulty of finding relevant games was likely due to our restriction of the games being free. There are educational programs that cover many topics in mathematics, but those programs are sold in stores, not put online for free. The games that are put online tend to be simpler and made in much less time.

Making Problem Sets

Procedure

After we were assigned a CCSS, and had found the games for it, we then had to create the problem set. To do this, we had to sort through the existing assistments' problem sets, and find some that were related to our CCSS. If we couldn't find any, we had to create our own variablized templates. Then we created a new problem set with a few instances of the existing problem set before the games and a few more instances of it after the games. We also set the games to randomly generate one or the other when the person accessed the problem set. This way, each person received the same pre and post tests, but a random game.

Problems

There were quite a few problems with creating the problem sets. The first is that while the CCSS is a good way to sort math skills, it is new, and the categories are shifting. Even in the period that we were creating our experiments, the categories changed. Because of this, none of the previously existing problem sets was made to follow the CCSS. We had to identify the skill in the CCSS, and try to find a matching problem set. Then we had to make sure that the problem set was at the grade level that our CCSS was. We also had technical difficulties with a few of the variablized templates in assistments. So if we found a problem set that matched, we still had no idea if we could use it in the experiment. This part of the experiment involved a lot of trial and error, and a lot of testing.

Game Selection

What is a game? This question has been debated since it has become recognized as a field of study. One commonly accepted definition explains that games are a form of play that is structured with rules. In this definition, play is described as any sort of activity that someone engages in for enjoyment. For our study, we narrowed the category of games to educational games: ones with the intent of teaching some subject matter to the player.

When searching for games to use in our study, we were not only looking for games that were about the required subject matter, but needed to look for a pair of games that were similar and complimented each other by being slightly different. With games that were mostly similar, we would be able to isolate different aspects of the games to see if there was any difference between the two groups of students.

We decided to categorize them based on several attributes that we found to be common, listed below.

Table 2: Game Categories

Choose Difficulty	Games in which students can choose their difficulty.
Point System	Players earn points in the game.
Immediate Feedback	The game tells the player whether or not they have answered correctly.
Simulation	An activity that shows a modeled situation.
Non Math Game Feature	Part of the game which is not related to math in any way.
Q&A	The game has at least a component of pure questions and answers.
Real World Example	The game relates skills to real life. i.e. making change
Time Limit	The limit of how long players have to answer.
No Accountability	Players are not punished for wrong answers, or rewarded for correct answers.
Scaling Difficulty	The better students do, the harder the questions are.

Surprisingly, there weren't as many games available online as we expected there to be. Although there was a good number of games that focused on simple addition and subtraction, there were fewer games for the tougher subjects that we wanted to include in our study.

When initially searching for games, we looked not only for individual games that were about the subjects, but also for general game websites that seemed to have many valuable games. We compiled a list of these websites, so that the other members of our group could later search them for useful games. After the research portion of our project, we had found 25

math websites that, overall, seemed to contain valuable games. We also created a list of games that we would be able to sort by the common core state standards, or any other heading. On this worksheet, we included the URL of every game, the main website that the game is part of, notes about the game, the common core standard, what skill it uses, whether it uses flash player, and the categories that apply to it. We included information about whether or not the game uses Flash so that when we give our studies to teachers, we can tell them exactly what is needed to run the game in schools or at the student's home.

The complete list of games we considered included over 90 games or activities, and only a small number of them were actually included in any study. One set of "games", for example, was more of a quiz about the topics, rather than a game. Without enough of the game elements to focus on, we decided not to include it in our study. Even after removing activities that did not have enough of the game elements we were studying, we needed to decide which games would work well with one another. This decision was made by finding games that were mostly similar, but different in one or two areas.

Game Choices:

Below are our game choices, sorted by the common core standard they were categorized under.

2.NBT.A.3:

Cookie Dough

Cookie Dough is a game in which players must write the correct words or number on a check, based on which one is already filled in. There are actually two versions of the game, one for words to numerals, and another for numerals to words which are in the respective versions of the problem sets.

Cookie Dough shows players how many times they have answered correctly and incorrectly and allows players to increase or decrease difficulty (it will give the player fewer digits in the number to be translated). It also gives players immediate feedback, telling them if they are right or wrong, and if wrong, giving players the correct answer.

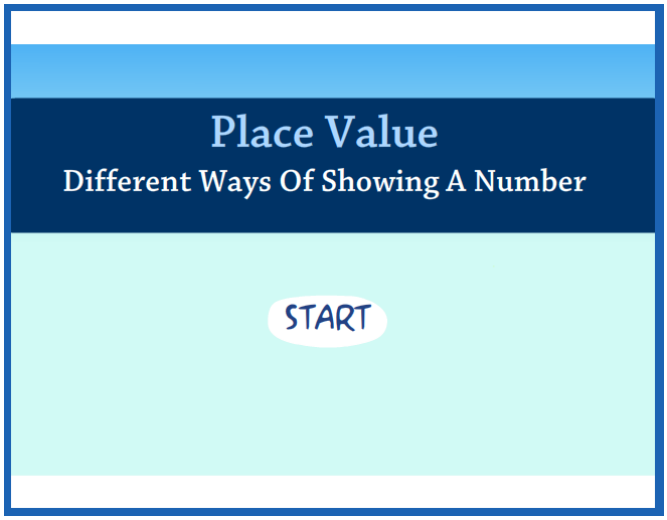
picture of game

Place Value

In Place Value, players are given a number, and must choose which combination of hundreds, tens, and ones is of equal value. The answers are not all simple: 345 equals 2 hundreds, 14 tens, and 5 ones. There is no difference in game for the two different problem sets.

Place Value gives immediate feedback by telling the players whether they are right or wrong, but does not explain to the player why he or she is wrong. The game only has 5 levels, and the question for each level does not change.

The game is limited by having only a few questions, and it may be more difficult, because does not have students apply the skill directly how they learned it. However, In order to complete the game, students must have an understanding of the skill, and will develop the skill as they play it.



Football Math

In Football Math, players must complete a pass to their receiver, and are then asked a

multiple choice question. Players receive points for answering the question correctly, and lose them for answering wrong. They must get a certain number of points to move on to the next level.

Football math gives players feedback by the points they earn, telling users whether of not they were correct in answering their question.

Although this game asks questions relevant to the material, but only asks them after successfully passing to their receiver. This game's feedback system may be useful to players learning math, but it also requires the user to be skilled at passing the ball, an activity that does not rely on math and could be challenging even for those who know the subject.

Scooter Quest

In Scooter Quest, players are asked a multiple choice question, and players earn money for answering correctly. They must play through a multiple rounds, eventually earning enough money to buy a scooter.

In Scooter Quest, there is not much of a penalty for answering questions wrong. Although no money is earned for wrong questions, after a certain number of questions, the player will move on to the next level, regardless of money earned.

The game tells players if they are right or wrong, but lets the players continue regardless. The game was included to see how this affects students: not being held back because they are wrong.

3.NBT.A.1:

Rounding Spaceships

In Rounding Spaceships, the player must round the number to the nearest ten in order to successfully send off 20 spaceships. This is done by selecting the spaceship with the correct answer on it. There is little to no negative reinforcement for wrong answers.

This game was chosen because it is very similar to Rounding Sharks except it has no negative reinforcement or time limit, minimizing variables.

Rounding Sharks

In Rounding Sharks, players must round the number to the nearest hundred to keep a fish alive. They do this by clicking on the shark with the correct answer. If the player waits too long or chooses the incorrect shark, the shark eats the fish and you lose.

This game was chosen because it is very similar to Rounding Spaceships except it has negative reinforcement for failure and a time limit, minimizing variables.

4.NF.A.2:

Balloon Pop

In Balloon Pop, the player pops the balloons from lowest fraction to highest fraction. There are 10 levels, and the player gets bonus points for completing the levels quickly. The player loses points for trying to pop the wrong balloon.

This game was chosen because it gives immediate feedback on score, and the ability to play again and try to beat the previous score.

Tug Team

In Tug Team, the player has to choose if the fraction is bigger, smaller, or equal to the other fraction. This game is played online, so an opponent is also guessing. If the player gets the question right, but their opponent does not, then the motor-bike pulls the other team. The goal is to pull the other team over the center line.

This game was chosen because it uses real people as the competitors, instead of a

simple point based system.

4.NBT.A.3:

Rounding Spaceships

In Rounding Spaceships, the player must round the number to the nearest ten in order to successfully send off 20 spaceships. This is done by selecting the spaceship with the correct answer on it. There is little to no negative reinforcement for wrong answers.

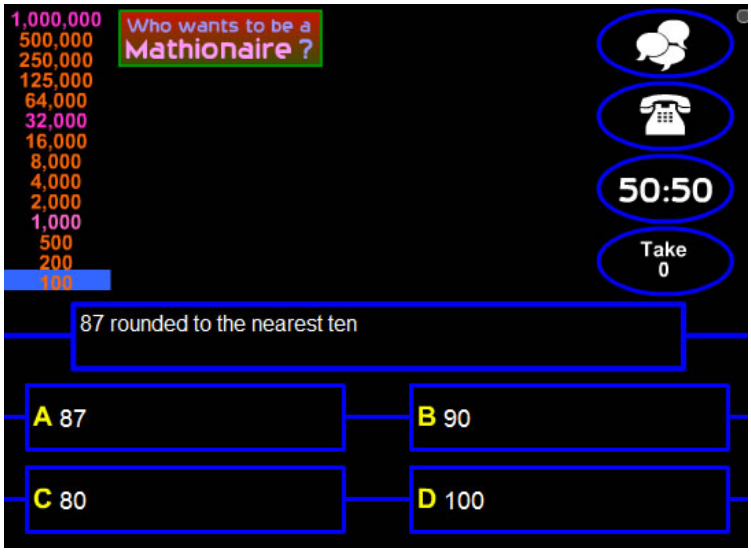
This game was chosen because it is very similar to Rounding Master except it has no negative reinforcement or scaling difficulty, minimizing variables.

Rounding Master

In Rounding Master, the player plays Who Wants to be a Millionaire with rounding questions that get more difficult the further you progress. It also has life lines, similar to the show.

This game was chosen because it is very similar to Rounding Spaceships except it has

negative reinforcement and scaling difficulty.



5.NBT.A.3a:

Football Math

In Football Math, players must complete a pass to their receiver, and are then asked a multiple choice question. Players receive points for answering the question correctly, and lose them for answering wrong. They must get a certain number of points to move on to the next level.

Football Math gives players feedback by the points they earn.

Although this game asks questions relevant to the material, but only asks them after successfully passing to their receiver.

Scooter Quest

In Scooter Quest, players are asked a multiple choice question, and players earn money for answering correctly. They must play through a multiple rounds, eventually earning enough money to buy a scooter.

In Scooter Quest, there is not much of a penalty for answering questions wrong. Although no money is earned for wrong questions, after a certain number of questions, the player will move on, regardless of money earned.

The game tells players if they are right or wrong, but lets the players continue regardless. The game was included to see how this affects students: not being held back because they are wrong.

Soccer Math

Soccer Quest is a game in which players take a penalty kick after answering a multiple choice math question. There are only three rounds, so the player should play the game multiple times.

Players are asked the question first, before the non math gameplay, and earn points for both.

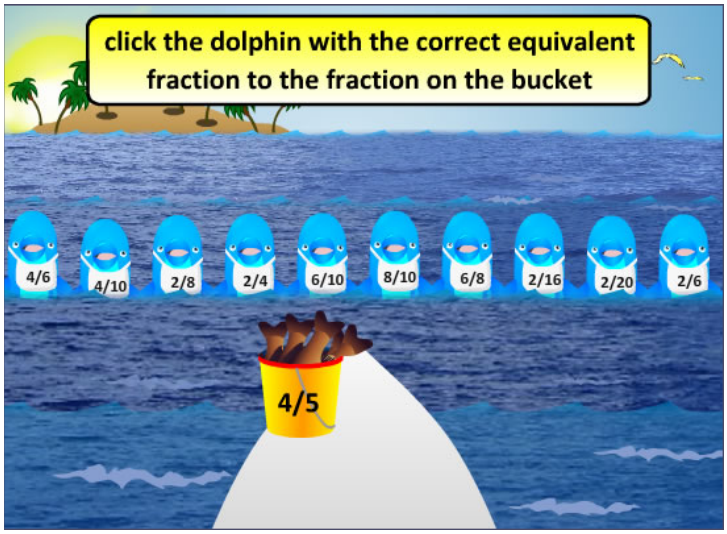
The focus of this game is the math, even though there is a non math feature of the game. More points are earned for the math than for scoring, and players are not allowed to kick the ball unless they answer correctly.

5.NF.A.1:

Fraction Dolphin

In Fraction Dolphins, the player has to feed the dolphin with the fraction equivalent to the fraction on the bucket. The player progresses through each level by feeding the correct dolphins. There are three levels for the player to progress through.

This game was chosen because it does not present the player with any scoring, and instead just has them progress through the three levels.

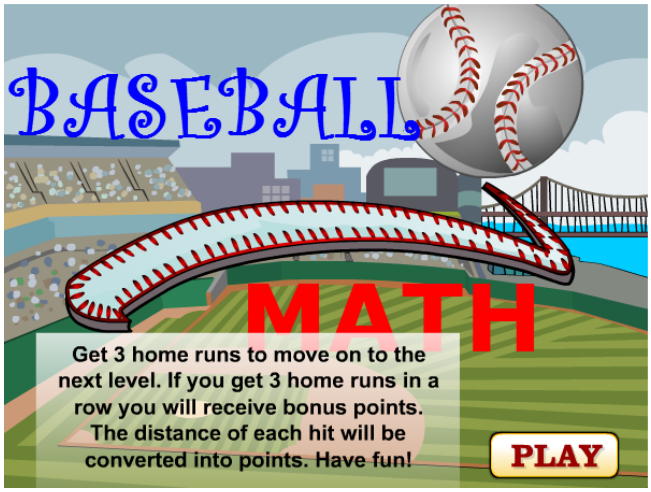


Baseball Math

In Baseball Math, the player tries to hit a homerun in ten pitches. If the player hits the

home run, they then answer a math question. The objective is to get the player to get as many questions right as possible.

This game was selected because it presents the math question as an award for getting a home run.



5.NBT.A.4:

Baseball Math

In Baseball Math the player must successfully hit the ball to score home runs and score. They must then answer a decimal rounding questions. If they answer correctly, their score goes up. If they answer incorrectly, their score goes down.

This game was selected because it is basically a game with math questions tacked on, rather than a game that incorporates math into itself.

6.NS.B.4:

Who Wants to be a Millionaire

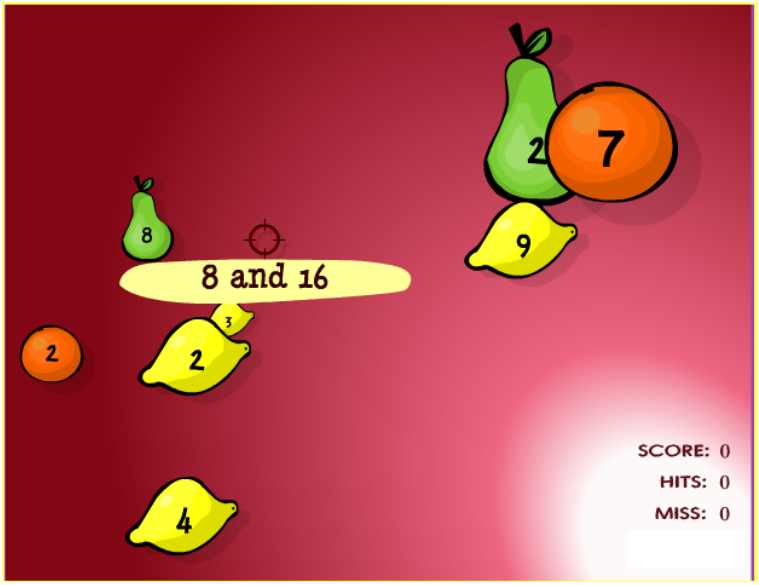
In Who Wants to be a Millionaire, the player chooses a character, and then proceeds to answer a series of questions, each worth more points than the last. The objective is to get the most points possible by the end of the game. If they answer incorrectly, their score goes down.

The game was selected because it is a fun way to present a series of math questions to the player.

Fruit Shoot

Fruit Shoot presents a bunch of fruit flying around the screen with different numbers on them. The player is given a question, and has to shoot the fruit with the correct answer to get points. The player can play in relaxed mode, in which they are only given 10 questions to answer, or in timed mode, in which they have a time limit to answer as many questions as possible. The goal is to get as many points as possible.

The game was selected because it is a fun way to present a series of math questions to the player.



Hypothesis

We hope to see a difference in the students' ability based on the different types of games that they play. We expect to see different games affect the students' abilities in different ways. We hope to learn what types of games have more positive effects, and are thus better at teaching math to students. By the end of the experiment, we hope to identify the elements that make a math game fun and educational.

We believe that there will be a measurable difference in the ability of students to perform different math skills based on the qualities of the games they play. We think that games with immediate feedback will be more helpful to students, as they will teach the students as they are playing, rather than having students figure out what they did right or wrong.

We believe that non-math-game features will not help the students learn, and may perform worse than games without these features. Games that incorporate math into the gameplay should be more engaging, and do a better job of teaching students. Games that have separate gameplay and math elements may alienate participants who may not be able to pass the gameplay portion of the game.

Experiment Descriptions

Table 3: Selected Game Categories

Game	Categories
Balloon Pop	Point System, Immediate Feedback
Baseball Math	Point System, Immediate Feedback, Non Math Game Feature, Q&A
Cookie Dough	Choose Difficulty, Immediate Feedback, Real World Example,
Football Math	Point System, Immediate Feedback, Non Math Game Feature, Time Limit
Fraction Dolphin	Immediate Feedback, Scaling Difficulty
Fruit Shoot	Choose Difficulty, Point System, Immediate Feedback, Time Limit
Place Value	Q&A, Point System, Immediate Feedback
Rounding Master	Q&A, Immediate Feedback, Scaling Difficulty
Rounding Sharks	Q&A, Immediate Feedback, Time Limit
Rounding Spaceships	Q&A, Immediate Feedback
Scooter Quest	Q&A, No Accountability, Scaling Difficulty
Soccer Math	Point System, Immediate Feedback, Non Math Game Feature, Q&A
Tug Team	Immediate feedback, Q&A
Who Wants to be a Millionaire	Point System, Immediate Feedback, Q&A, Time Limit

Problem Set 71005: Rounding Sharks vs Rounding Spaceships

These two games were chosen because they are extremely similar games except the shark game has a time limit and punishment for wrong answers. This will help to see how

negative feedback and time incentives affect the students.

Problem Set 74985: Rounding Master vs Rounding Spaceships

These two games are similar as they are both multiple choice rounding games without time limits. The difference is that the Rounding Master makes you start over when you get a question wrong. This allows us to compare negative feedback to no real feedback.

Problem Set 81944: Baseball Math vs Skill Builder

This set compared a game against an Assisments skill builder. The game was essentially a game with questions in between gameplay segments. This set allowed us to compare questions with a game with questions stuck in it.

Problem Set 73534: Cookie Dough vs Place Value

The two games are similar in the sense that they both provide immediate feedback to the player. The two games should show a difference between applying the skill directly or requiring students to use the skill to play the game. In this problem set, students are asked to convert numbers from word form to standard form.

Problem Set 73570: Cookie Dough vs Place Value

The two games are similar in the sense that they both provide immediate feedback to the player. The two games should show a difference between applying the skill directly or requiring students to use the skill to play the game. In this problem set, students are asked to convert numbers from standard form to word form.

Problem Set 73655: Football Math vs Scooter Quest

Both games do not follow conventions of games in different ways. Football math gives questions, but only after successful gameplay. Scooter Quest will not hold players back for non math gameplay... or even the math. The study should show which is more effective: not holding back players, or reinforcing the lessons through negative feedback. Students are asked to convert numbers from word form to numeral form.

Problem Set 73656: Football Math vs Scooter Quest

Both games do not follow conventions of games in different ways. Football math gives questions, but only after successful gameplay. Scooter Quest will not hold players back for non math gameplay... or even the math. The study should show which is more effective: not holding

back players, or reinforcing the lessons through negative feedback. In this problem set, students converted numbers in standard form to word form. The problems were multiple choice.

Problem Set 75727: Football Math vs Scooter Quest

Both games do not follow conventions of games in different ways. Football math gives questions, but only after successful gameplay. Scooter Quest will not hold players back for non math gameplay... or even the math. The study should show which is more effective: not holding back players, or reinforcing the lessons through negative feedback. The questions in this study ask the students to convert a decimal value from standard form to word form. The questions were multiple choice.

Problem Sets 73726: Soccer Math vs Football Math

Both games reward players for math and gameplay, though there is a different balance between them in the games. In Football Math, the game can get in the way of the math problem. In Soccer Math, the player answers the math question, before being rewarded with gameplay. Students convert numbers from word form to standard form.

Problem Sets 74693: Soccer Math vs Football Math

Both games reward players for math and gameplay, though there is a different balance between them in the games. In Football Math, the game can get in the way of the math problem. In Soccer Math, the player answers the math question, before being rewarded with gameplay. This problem set used also had students convert decimals from standard form to word form. Students chose their answer from four options.

Problem Sets 75726: Soccer Math vs Scooter Quest

Soccer Math penalizes players for answering wrong by not allowing them to do the gameplay portion of the game. Scooter Quest does not hold players back for answering wrong, only telling them that they are wrong. In this problem set, the students were asked to convert decimals from word form to stndard form

Problem Sets 75729: Soccer Math vs Scooter Quest

Soccer Math penalizes players for answering wrong by not allowing them to do the gameplay portion of the game. Scooter Quest does not hold players back for answering wrong, only telling them that they are wrong. Students were asked to convert decimals from standard form to word form by answering a multiple choice question.

Problem Set 71555: Fruit Shoot vs Who Wants to be a Millionaire

These two games were similar in that they both were graded on a point system with immediate feedback. Both were also given a time limit. The difference between the games is that Who Wants to be a Millionaire is based on a Q&A system.

Problem Set 76115: Fraction Dolphin vs Baseball Math

These games were similar in that they both provided immediate feedback. The main difference between these two games is that the Baseball Math game contained a non-math-game feature.

Problem Set 89945: Balloon Pop vs Tug Team

Both of these games provided immediate feedback. The Balloon Pop game featured a definite point system, while the Tug Team game did not.

Recruitment

In order for the study to work, we needed students to complete our problem sets. To find kids, we created a powerpoint presentation (Appendix #) to present to and send to teachers. We made sure to emphasize our problem set's compliance with the Common Core State Standards, a selling point for teachers in schools that have adopted these standards. We gave the teachers some simple instructions to run the study, explaining that they only needed to pick the problem set to use, assign it, and then the information would be available to both the teachers and us. For each problem set, we dedicated a slide to show the problem set number, the Common Core Standard, and links to the games used. This gave the teachers a sense of what their students would do in the study.

Results

Table 4: Student Participation

Problem set	Multiple Choice Pre/Post Test?	Number of students that took the experiment	Number that did not finish or had technical difficulties	Aced Pre Test	Failed Pre Test
73570	Yes	289	39	90%	0%
71005	No	238	72	35%	10%

71555	No	259	91	12%	18%
73534	No	322	39	82%	2%
73655	No	282	34	85%	2%
73656	Yes	247	42	87%	0%
73726	No	101	16	73%	11%
74693	Yes	104	22	77%	1%
74985	No	112	41	30%	17%
75726	No	109	24	67%	12%
75727	Yes	104	21	81%	2%
75729	Yes	117	18	80%	4%
76115	No	112	36	32%	30%
81944	No	215	50	39%	12%
89945	Yes	188	53	74%	3%

Table 5: Study Test Results

Problem Set	Game A	Difference between pre and post tests game A	Game B	Difference between pre and post tests game B	T-test between games
73570	Cookie Dough	.04065	Place Value	.02362	.36158
71005	Rounding Sharks	.12048	Rounding Spaceships	.02410	.25906
71555	Fruit Shoot	-.08889	Who Wants to be a Millionaire	-.25641	.14735
73534	Cookie Dough	-.02400	Place Value	.15190	.00903
73655	Football Math	.03788	Scooter Quest	0	.28978
73656	Football Math	.01887	Scooter Quest	-.01010	.35722
73726	Soccer Math	-.04878	Football Math	-.04545	.48862

74693	Soccer Math	.15556	Football Math	-.08108	.24462
74985	Rounding Master	.32353	Rounding Spaceships	.18919	.27814
75726	Soccer Math	.12500	Scooter Quest	0	.19157
75727	Scooter Quest	-.07317	Football Math	.09524	.05570
75729	Soccer Math	.01923	Scooter Quest	.06383	.34977
76115	Fraction Dolphin	.17143	Baseball Math	-.02439	.19215
81944	Rounding Decimals Problem Set	.24691	Baseball Math	.05952	.07041
89945	Balloon Pop	-.05195	Tug Team	-.08621	.40467

Conclusion

Although many students completed the problem sets in our study, there was not enough of a significant difference between the the two conditions to draw a conclusion from the studies. Out of our 15 studies, only one had a statistically significant difference between the two games. That study (#73534) was examining games effects on converting numbers from words to numerals (2.NBT.A.3), like converting five hundred and twelve to 512. The two games were Cookie Dough and Place Value and the data suggests that Place Value is better at helping students to understand this concept. This suggests that using the skill to complete a game is better than applying the skill to a “real world” scenario to help a student learn.

The fact that many of our studies showed no difference between the two conditions is troubling. This would suggest that playing any game has the same effect on learning. Whether or not that effect is positive or negative would require another study. The fact that the study was mostly unsuccessful in showing a difference between the games may be due to some flaws in the study rather than the games having similar effects.

One major flaw was that a large portion of the students that took part in the study were past the age where they would learn the material they are being tested on. This would mean that the game would not help them learn at all because they had already learned it. This is supported by the large number of students that got a perfect score on the pretest as well as the post test. If the students have already learned the material then the game will have no discernable effect on their abilities.

Another problem with the study was that a teacher created a contest that rewarded

students for participating in the study. This contest did not take into account whether or not the students completed the study or did it to the best of their ability. This gave us a lot of incomplete results as well as results where every question was answered incorrectly. Because the students merely wanted to participate to get rewarded, they exploited the system with minimal effort.

Another flaw in the study was that the students only played the games once, for 5 minutes. Since it takes longer than 5 minutes for a student to learn something, that would suggest that they would need to play the game for more than 5 minutes for it to take effect. There is also the issue that the students were on the honor system to play the game for 5 minutes, and thus might not even play it for that long, leading to the game affecting them even less.

Problem Set 73534

This problem set tested the Common Core Standard 2.NBT.A.3, reading and writing numbers up to 1,000 using base ten numerals, number names, and expanded form. This problem set specifically looked at the conversion from word form to standard form: students were asked to type the number that had been represented with words.

In this study, we found a significant difference between the two conditions (a t-test value of 0.00903). Students played the games Cookie Dough and Place Value for this problem set. Cookie Dough was a game that was very similar to the problem set; students were given the word form of a number, and asked to write the number with digits. The game framed the questions as having the students fill out a check. The number was randomized, and students were allowed to continue as long as they wanted, there was no win condition. Place Value asked students to find the different ways a number could be written. They were given a number in standard form, and asked to find the different ways it could be written from six choices. Each choice was written in the form of “3 hundreds, 14 tens, 5 ones”, mixing numbers with words.

We found that the students who played Cookie Dough did worse on the post-test than the pre-test, while students who played Place Value showed improvement. Cookie Dough was very similar to the questions of the post and pre test. In fact, Cookie Dough simply gave a simple reason to convert the number between forms. On the other hand, Place Value was not directly related, as the game had players converting in the opposite direction (standard form to words). Both games provided immediate feedback to the players on whether they were correct. Surprisingly, Cookie Dough (the game that performed more poorly) was also categorized by aspects we believed would be beneficial to students: the ability to choose their own difficulty and having math place in a real world context. Place Value, while being more quiz like in structure, also contained a point system, and seemed to have more of a “game-like feel” than completing checks with no end goal to achieve, other than continuing to answer questions correctly.

One of the other studies we ran was similar, but instead the students were asked to convert numbers from standard form to word form. In this study, the students picked their

answer from four choices. Also, while the Place value Game remained the same, the version of Cookie Dough was changed slightly, to reflect the change in questions. The new Cookie Dough game asked users to write the word form of a number. In this study, the t-test value was .36, with both games showing a slightly positive influence on players. In this study, Cookie Dough was slightly more helpful than Place Value.

Problem Set 81944

Problem Set 81944 was designed to evaluate standard 5.NBT.A.4, which requires students to round decimals to any place. The pre and post test were open response questions, reducing the chances that participants could guess their way through. The test compared the game Baseball Math with an ASSISTments skill builder on the subject. In the game, the students would attempt to hit home runs and for every successful hit, they would be asked a multiple choice rounding question. In the skill builder, the students are asked a series of open ended rounding questions, similar to the pre and post tests, until they successfully get three questions correct.

This study was to compare how students learned with math questions versus math questions with a game in between. Some educational games are simply games with topic related questions tacked on which seems like a poor way to teach students anything. This study attempted to prove whether this is true. In this study 215 students participated and 50 students either had technical difficulties or did not complete the study. Of the remaining 165 students, 54 students aced the pre and post test and 29 students failed both. This leaves 82 students with results that changed between the two tests. Of that 82, 44 students had the skill builder and 38 had the baseball game. The skill builder improved the scores of 32 students and decreased the scores of 12 students. The baseball game improved the scores of 20 students and decreased the scores of 18 students.

This data suggests that there was generally more improvement in the skill builder group than the game group. It is difficult to tell as the p-value is too high (0.07041) but there is still some evidence that tacking a game onto a math quiz is worse than just a math quiz.

Problem Set 75727

This problem set's t-test value was .0557, a score that nearly showed significant difference between the two games. This problem set was built around the standard 5.NBT.A.3a, reading and writing numbers to the thousandths using base ten numerals, number names, and expanded form. Students were asked to convert decimals from standard form to word form, by choosing the correct words from the four choices given. The two games being compared were called Scooter Quest and Football Math. Scooter Quest asked players to round a decimal number to a certain place value. Although this game did not test exactly what the standard described, it exposed players to decimals and knowing what digit was in which place. The other game, Football Math, asked players to identify what place a number is in, with the player

answering a multiple choice question with the word for each place. However, the players were only asked the question after throwing a complete pass to their receiver, a difficult task.

Both games had their own flaws, but it is not surprising that Football Math would have been more helpful to students. Overall, the students who played Football Math improved between the pre and post test, while students who played Scooter Quest tended to perform worse on the postest. Both games posed obvious questions to the player, but were very different in other aspects. Football Math had frustrating gameplay, which players were required to complete before being asked a question. There was also a time limit on this section of the game, but not the actual question. However, it did reward players for gameplay and for answering the question correctly with points, which reinforced when students were told when they were right or wrong. Scooter Quest, on the other hand, had no gameplay to overcome, but was not helpful giving feedback to the player. Although there was a form of feedback in telling the player if they were right or wrong, the game did not stop, and the answers didn't matter, players would continue to the next level even if they answered every question incorrectly. It seems that Scooter Quest was not able to reinforce what it was meant to teach.

Further Study

In our studies, many students aced both the pre and post tests, showing that they understood the subject matter before taking part in our study. If we were to use these studies in the future, we would make sure to select students who would not have seen the material before; the students would use our studies either while learning the information or before. This would ensure that the games are what teach the students the material, and any results we would receive would better tell us what effect the games have. We would also have to provide a way to try to prevent people from going through and not answering any questions.

We would also have to set up the experiment to have the students play each game for more than five minutes. Unfortunately, we would probably have to have different games, because some of the games that we chose for the experiment are short, and can be played through in only a few minutes.

The best way to set up this experiment in the future would be to run it on only one common core state standard, and have the experimenters build the games themselves. This way, they could completely control the variables being tested between the games. They would also eliminate the entire A term problem of trying to locate games that can be used for our multiple of CCSS. This took us way too much time, and can easily be avoided in the future.

Something that would be interesting to look into in the future would be the effect that games have on the different directions. For instance, the only experiment that had statistically significant results was 73534. Interestingly, this used the same games as 73570, which did not have statistically significant data. Did the direction that the problems were set up in have an effect on the student's ability to learn? Setting up an experiment to answer this question could be something that future experimenters can look into.

Another issue that we encountered was difficulty in using the data provided by the

Assisments system. It churned out a lot of seemingly meaningless numbers that were difficult to interpret and sift through. The information was sorted with one question per row. So person A had 11 rows just for himself. While we did finally find a way to sort this data, it took us a long while. Future experimenters should find a way to get the data in a usable format, or make sure they have a way to sort it before they get the data, so they can produce usable results within a week or two of receiving the data.

Appendices

Appendix A

Notes

Owner	Standard	Problem Set Number	Skill Builder	In Powerpoint	Approved?
Kevin	2.NBT.A.3	73534	73021	yes	checked
		73570	73028	yes	checked
		73655	73021	yes	checked
		73656	73028	yes	checked
Kevin	5.NBT.A.3a	73726	73681	yes	checked
		74693	74674	yes	checked
		75725	73681	yes	checked
		75727	74674	yes	checked
		75726	73681	yes	checked
		75729	74674	yes	checked
Mike	3.NBT.A.1	71005	87316	yes	fixed
Mike	4.NBT.A.3	74985	87321	yes	fixed
Mike	5.NBT.A.4	81944	87331	yes	checked
Emily	6.NS.B.4	71555	can't	yes	fixed
Emily	5.NF.A.1	76115	89915	yes	fixed
Emily	4.NF.A.2	89945	89964	yes	fixed

By thursday:

##index slide

proof check every problem set

- NOTES
  - August 28, 2012
  - August 31, 2012
  - September 4, 2012
  - September 15, 2012
- TASKS
  - Emily
  - Kevin
  - Michael
- INFORMATION
  - Game websites
- Game Categories
  - Genres
  - Time
  - Software Requirements
  - Our Problem Sets

GOALS

Next Week

make problem sets (steal mike's)
outline google powerpoint

make docs & presentation in this login
the.ASSISTment.Teacher@gmail.com
wpiassistment

90% is the best average

End of A Term

-making a study problem set

1. get all the content built, tutoring has to be good
2. make the doc to document the group of templates
3. Create the skill builder set
4. create the study problem set; pretest, game, questionnaire, post test, assistment,

___

End of B Term

study problem sets
marketing tool (come try our study!) (previous research)
--- what is the content? What's the difference between game A & B?
--- make a google presentation. make sure to show off common core, example problem building docs

___

End of D Term

___

NOTES

August 28, 2012

Study:
http://teacherwiki.assistment.org/wiki/How_to_build_Variabilized_Templates

August 31, 2012

September 4, 2012

Look at different kinds of games:

- compete against others
- play alone
- arcade games with math, etc. tacked on
- games with skills more incorporated

Look for games that can be embedded in Assistments

What should we use as survey question?

TASKS

Build 2-5 templates and find games associated with them

start a doc for our report, write a paragraph about games, about our categories.

Emily

Greatest Common Factor, Least common multiple, common factor, common multiple.

I didn't build these

6921 - Greatest Common Factor - THE SKILL BUILDING SET

7196 - Least Common Multiple - THE SKILL BUILDING SET

7179 - Least Common Multiple - In a Word Problem

^same thing
(18887 - Least Common Multiple)

http://www.free-training-tutorial.com/negative-numbers/speedboat.html
http://www.free-training-tutorial.com/negative-numbers/number-balls.html
http://primarygamesarena.com/Minus-Numbers-In-Outer-Space409

Kevin

start

Add subtract multiply divide whole numbers

Games:
numbers in the thousands
http://www.math-play.com/math-racing-place-value-game/math-racing-place-value-game.html
math blaster style - game, then math question

tens to hundreths place
http://mrnussbaum.com/placevaluepirates1/

up to 10,000
http://www.funbrain.com/numwords/index.html

Michael

Take a look at 5th grade, see if talk about multiplying or dividing

Games organized by topic:
http://www.internet4classrooms.com/

Math at the Mall: Use math to solve real world problems with tax, interest, etc.
http://www.mathplayground.com/mathatthemall2.html

BBC Problem Solving: Play :Use math to calculate costs of food shopping
http://www.bbc.co.uk/bitesize/ks2/maths/number/problem_solving/play/

Grand Slam Math/ Word Problems with Katie: Same game essentially just with male and female avatars respectively which is essentially word problems with animation in between questions.
http://www.mathplayground.com/gsmbegin.html
http://www.mathplayground.com/katiebegin.html

INFORMATION

B term meeting time: 11-12 Tuesday, Friday

Study:

Common Core State Standards

WPI SKILLS with produced skill builders
This is where we go to find old templates

Examples of 6th grade question.

Examples of 5th grade questions.

Here are instructions on how to write variabilized templates.

Game Categories

Genres

choose difficulty
point system
immediate feedback
Simulation
Non math game feature
Q&A
Real World Example
time limit
no accountability
Scaling difficulty

Software Requirements

Flash
Shockwave
Java

Our Problem Sets

71005-3.NBT.A.1
71555-6.NS.B.4 Greatest Common Factor/Least Common Multiple
74985-4.NBT.A.3
81944-5.NBT.A.4
76115-4.NF.A.1

Appendix B

Common Core Standards

Skill	Grade
2.NBT.A.3, Read & write numbers to 1000	2.NBT.A.3

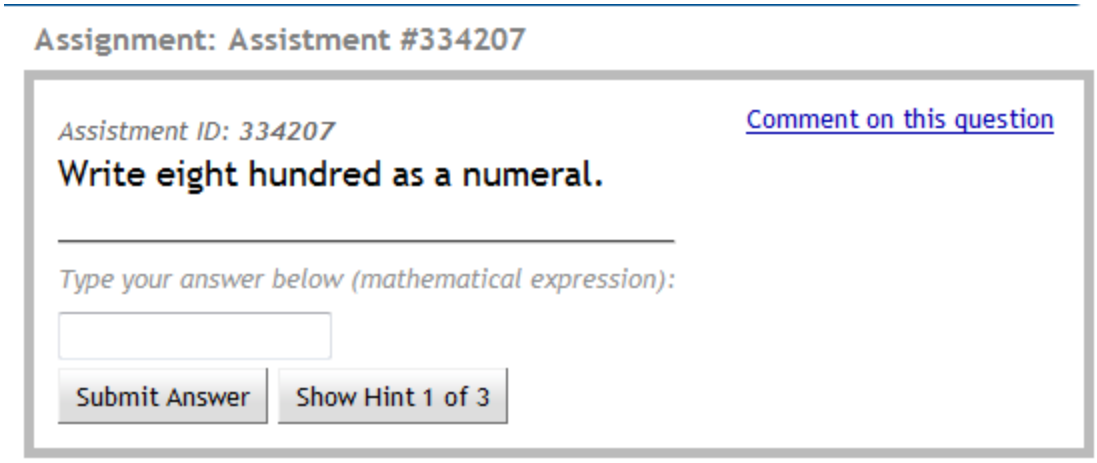
Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

THE MASTERY SET

Mastery Problem Set	Number of Templates
73021 (words to numeral) 73028 (numeral to words)	6
Number to Master	**Number of Attempts**
3 in a row	10

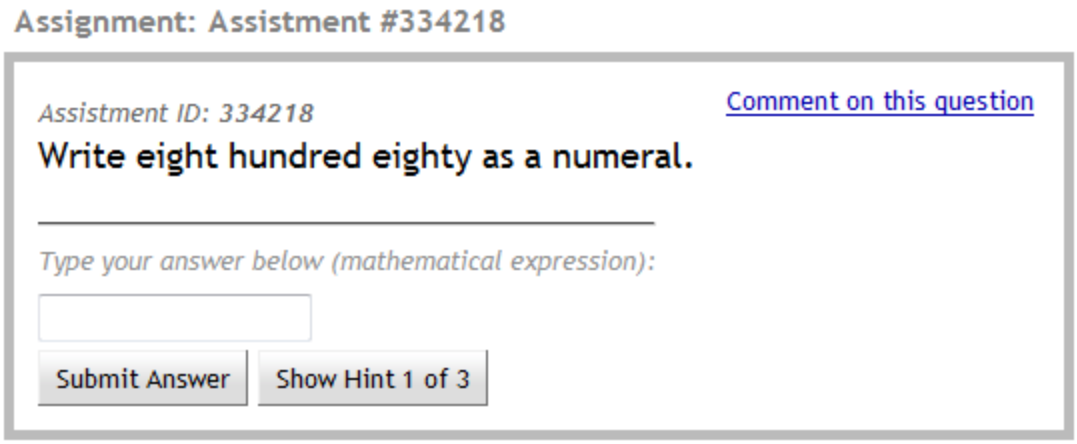
Templates:

334207



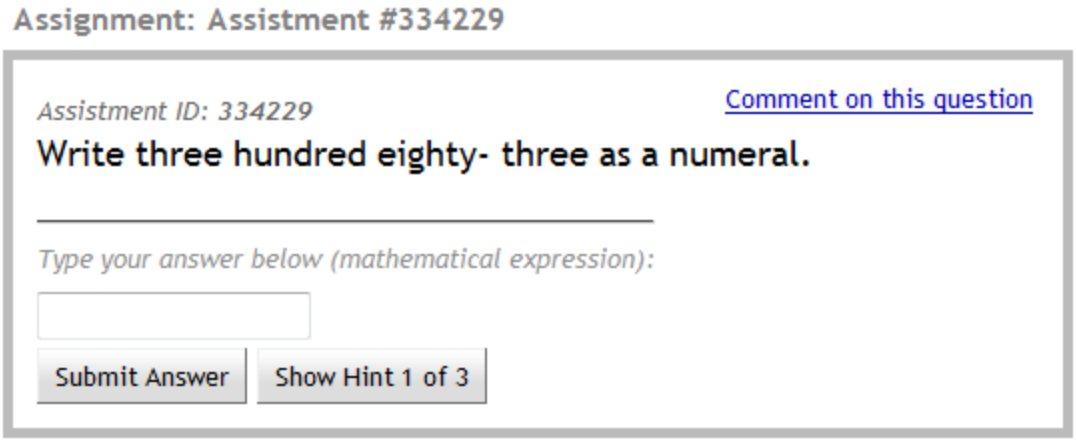
- Question always asks to write ____ hundred as a numeral (always 0 in tens and ones place)
- Can be any digit 1 through 9

334218



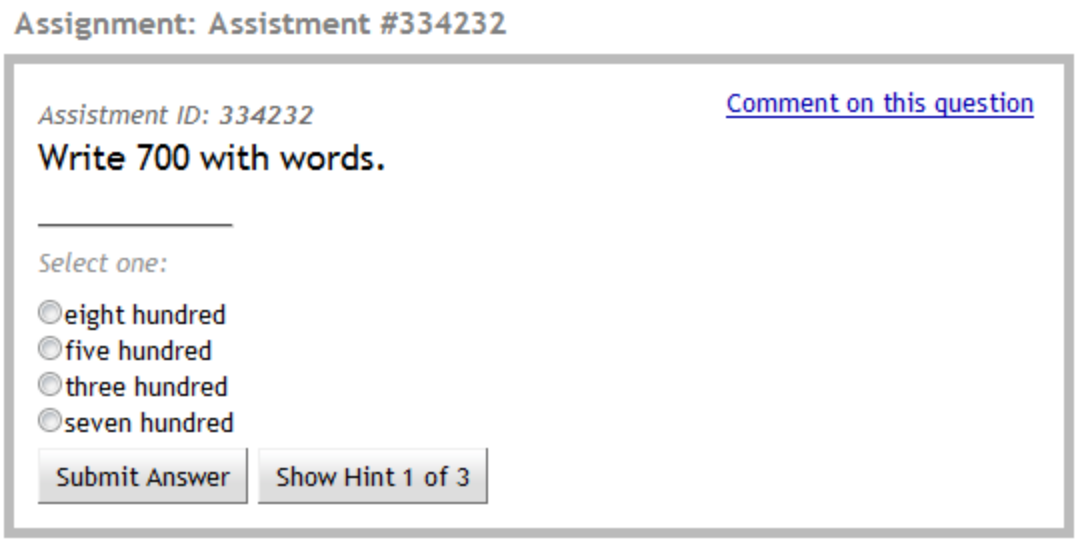
- The question always asks to write ___ hundred ___ as a numeral. (0 in the ones place)
- Both can be any digit 1 to 9.

334218



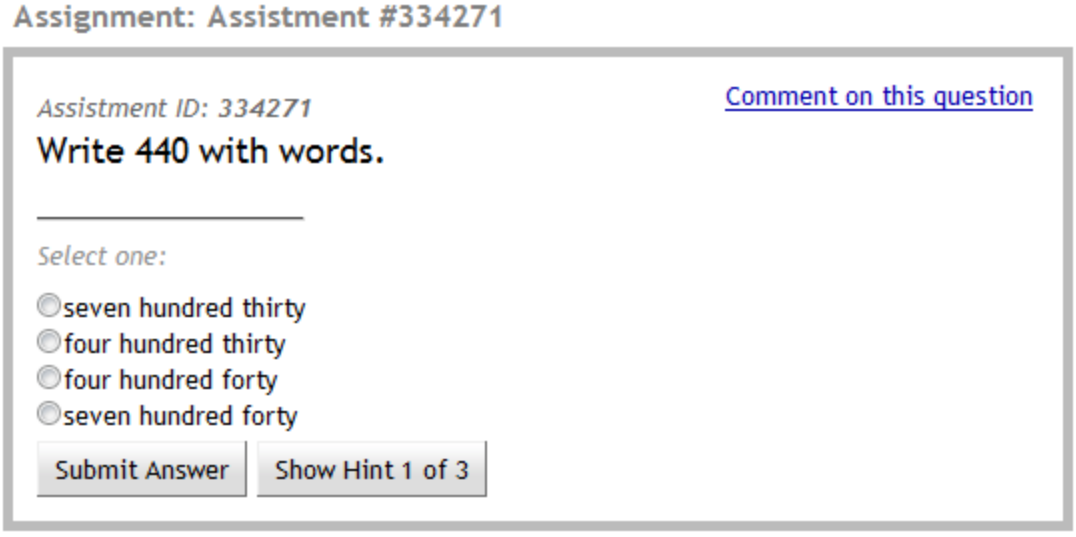
- The question always asks to write ___ hundred ___-____ as a numeral.
- The hundreds and ones can be any digit 1 to 9. The tens digit can be any digit from 2 to 9 (difficult to use variables for ___teen)

334232



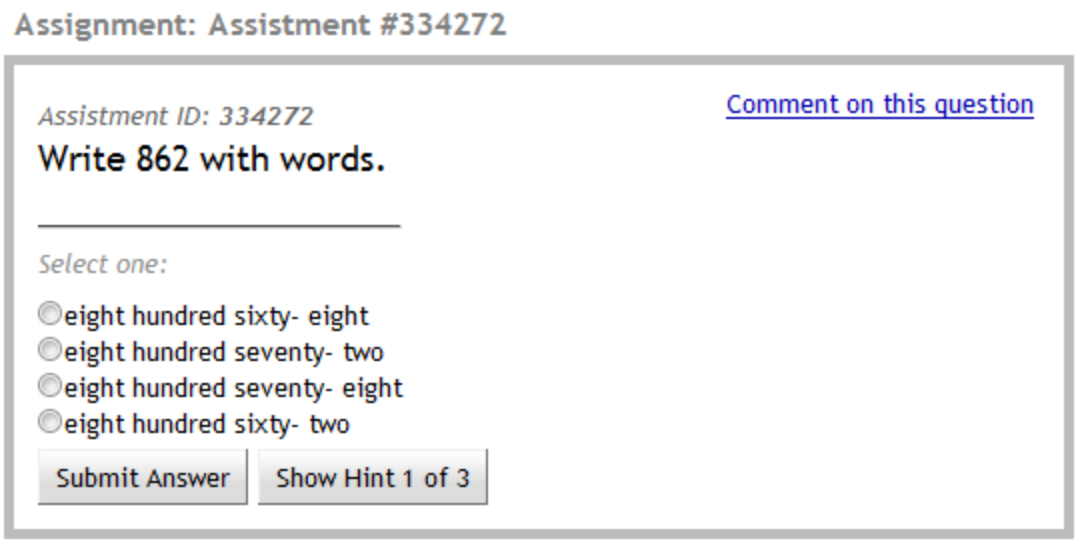
- The question always asks to write _00 with words.
- Multiple choice to avoid issues with typing in the words.
- The hundreds can be any digit 1 to 9.
- Four sets of answers.

334271



- The question always asks to write __0 with words.
- Multiple choice to avoid issues with typing in the words.
- The hundreds can be any digit 1 to 9. The tens can be any digit 2 to 9 (difficult to use variables for ___teen).
- two choices for hundreds, two choices for tens (one right, one wrong).

334272



- The question always asks to write ___ with words.
- Multiple choice to avoid issues with typing in the words.
- The hundreds and ones can be any digit 1 to 9. Tens can be anything 2 to 9 (difficult to use variables for ___teen).
- one choice for hundreds, two choices for tens, two choices for ones (one right, one wrong).

Skill	Grade
3.NBT.A.1, Round to the tens and hundreds places	3.NBT.A.1

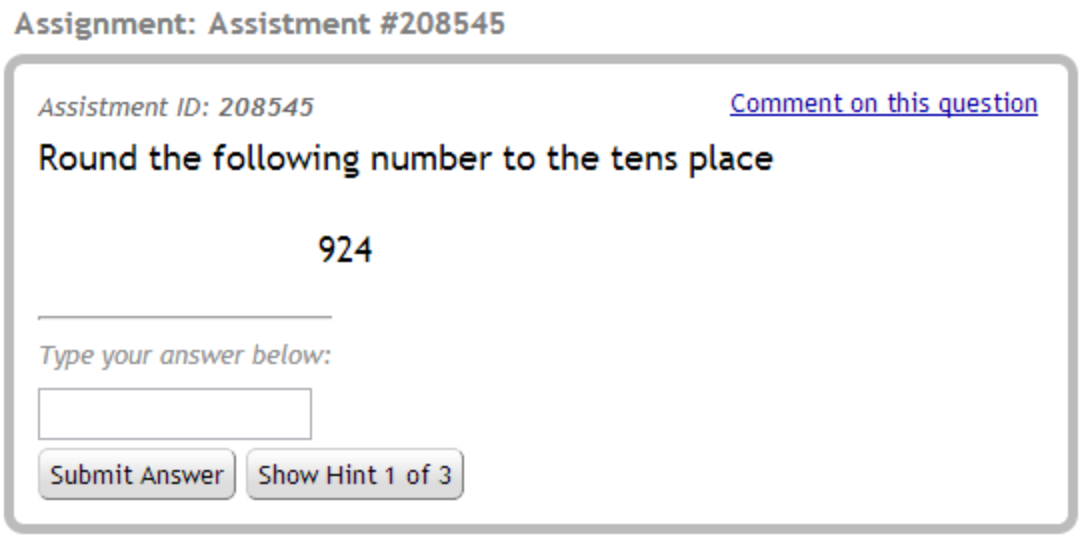
Use place value understanding to round whole numbers to the nearest 10 or 100.

THE MASTERY SET

Mastery Problem Set	Number of Templates
87316	3
Number to Master	**Number of Attempts**
3	10

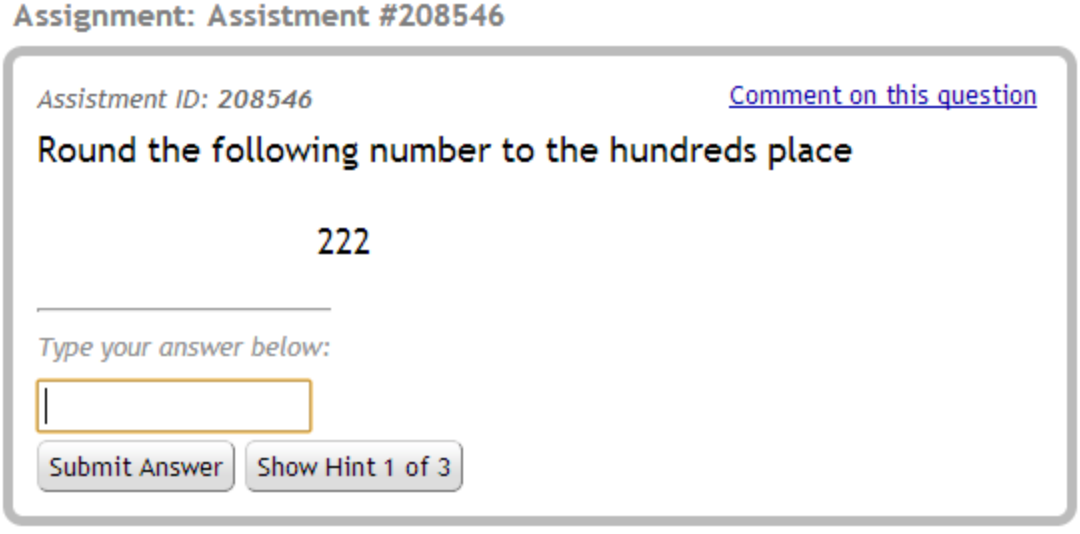
Templates:

208545



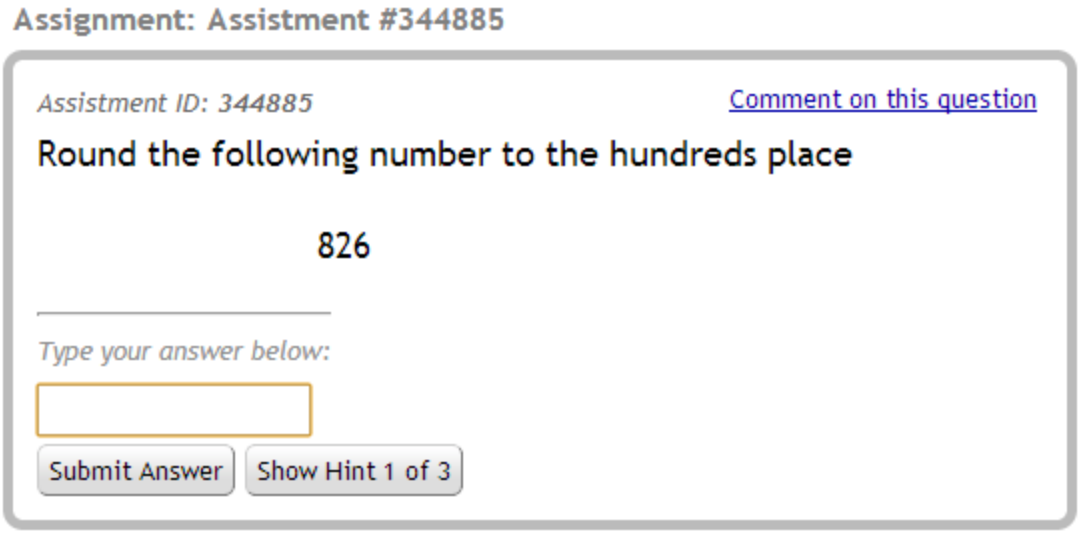
- Number randomly generated between 111 and 999
- Student always asked to round to the tens place\
- Answer type is fill in

208546



- Number randomly generated between 111 and 999
- Student always asked to round to the hundreds place
- Answer type is fill in

344885



- Number randomly generated between 111 and 999
- Student always asked to round to the hundreds place
- Answer type is fill in

Skill	Grade
4.NBT.A.3, Round to any place	4.NBT.A.3

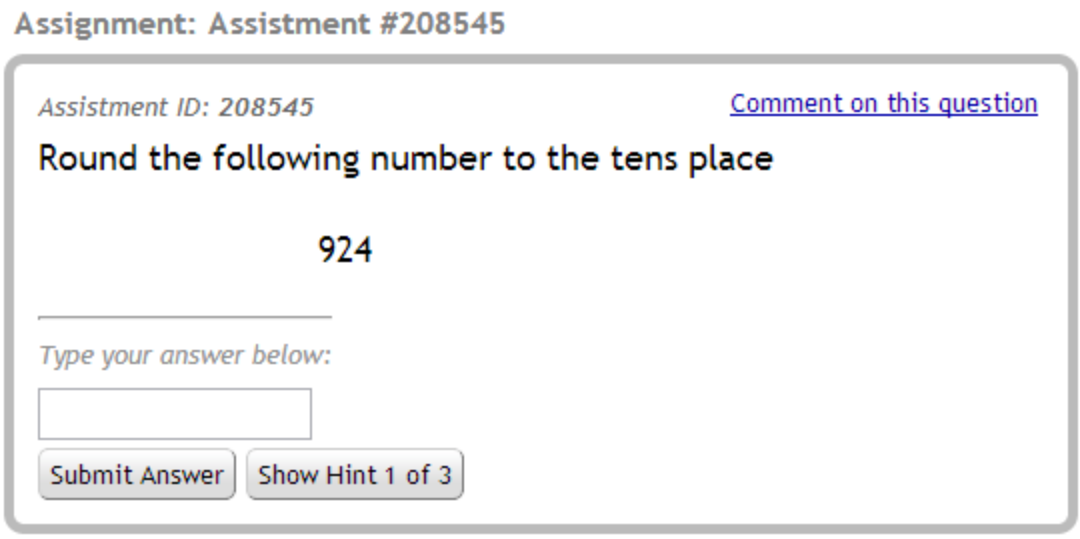
Use place value understanding to round multi-digit whole numbers to any place.

THE MASTERY SET

Mastery Problem Set	Number of Templates
87321	10
Number to Master	**Number of Attempts**
3	10

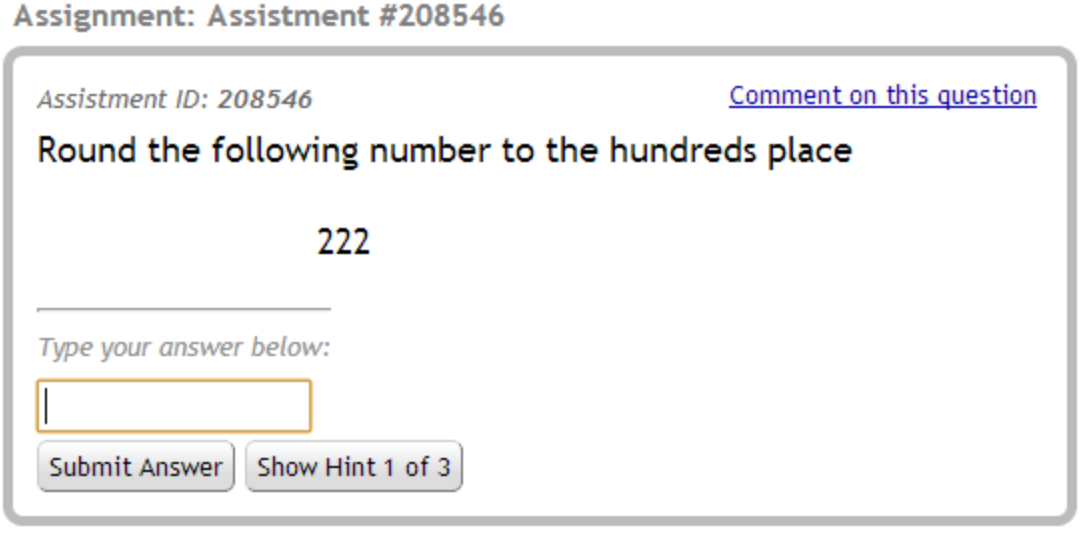
Templates:

208545



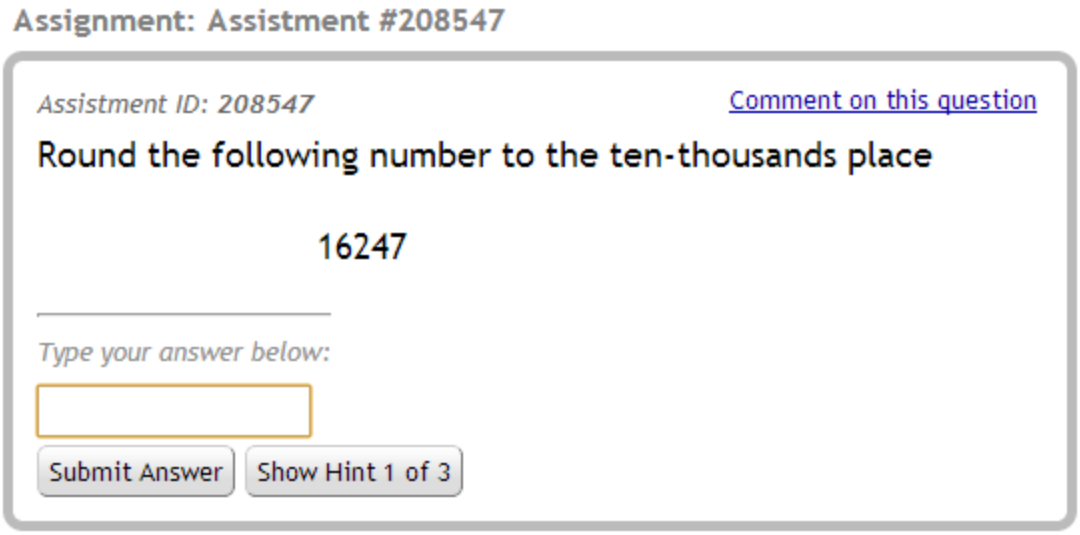
- Number randomly generated between 111 and 999
- Student always asked to round to the tens place
- Answer type is fill in

208546



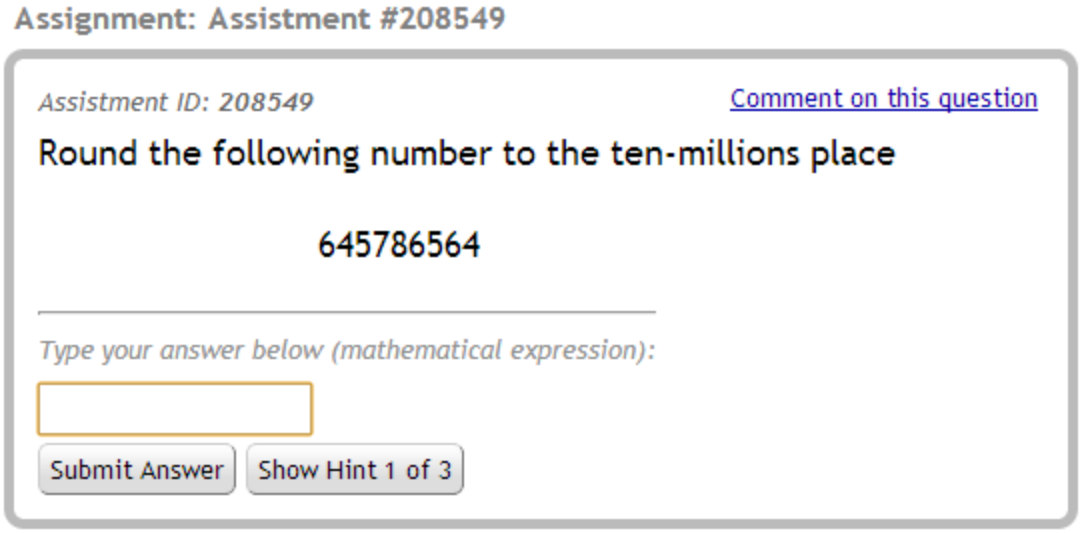
- Number randomly generated between 111 and 999
- Student always asked to round to the hundreds place
- Answer type is fill in

208547



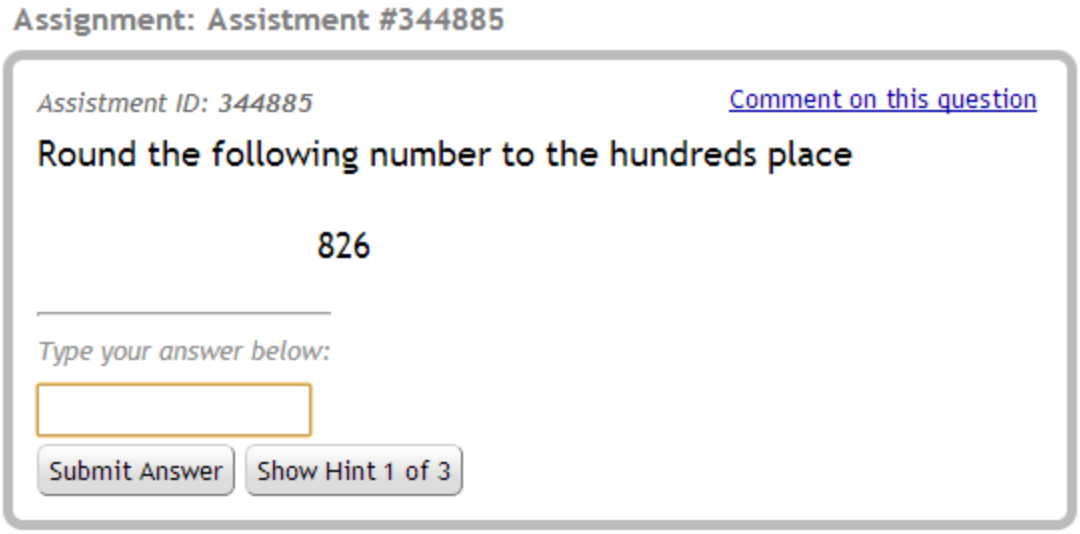
- Number randomly generated between 11111 and 99999
- Student always asked to round to the ten-thousands place
- Answer type is fill in

208549



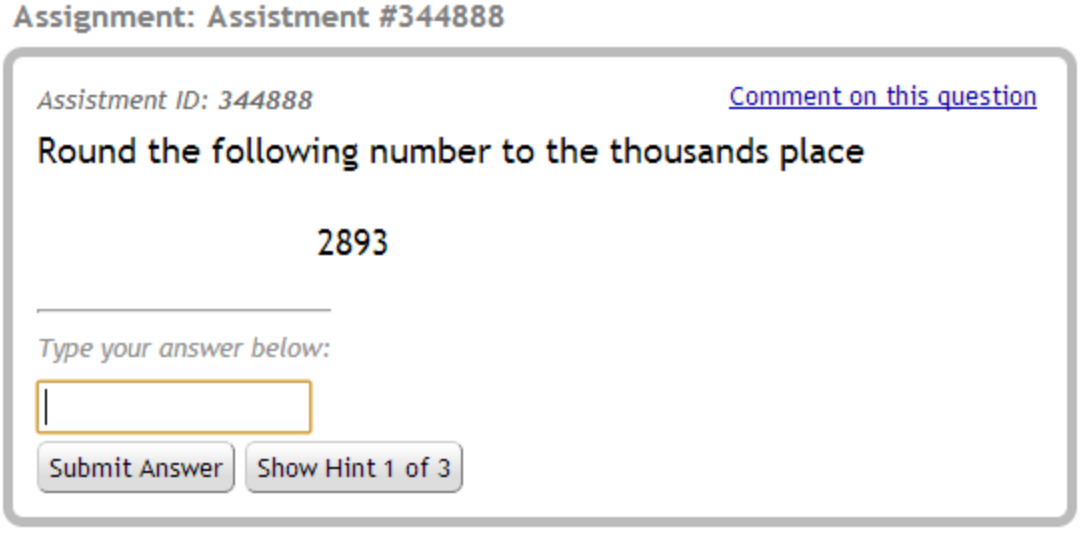
- Number randomly generated between 111111111 and 999999999
- Student always asked to round to the ten-millions place
- Answer type is fill in

344885



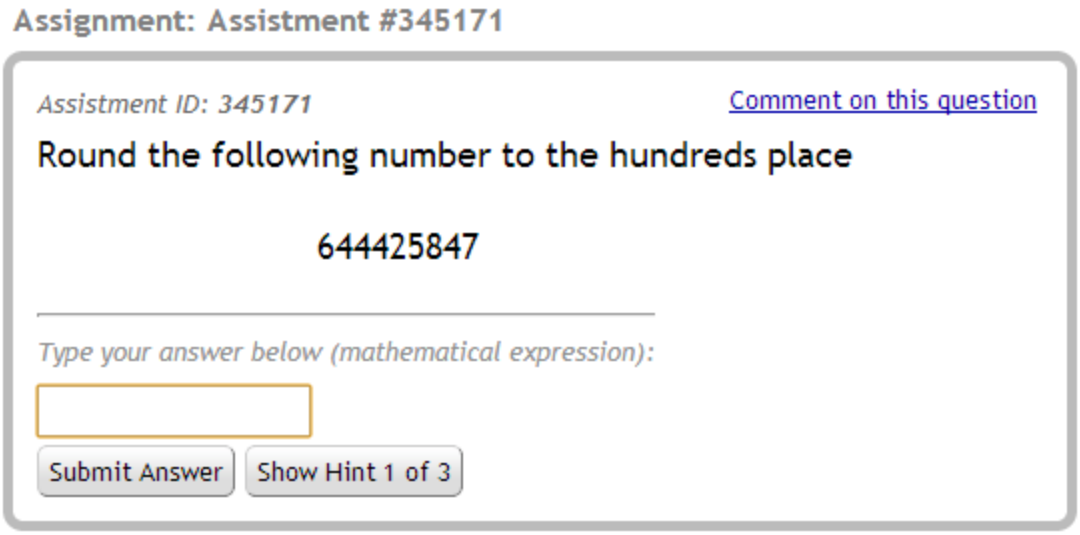
- Number randomly generated between 111 and 999
- Student always asked to round to the hundreds place
- Answer type is fill in

344888



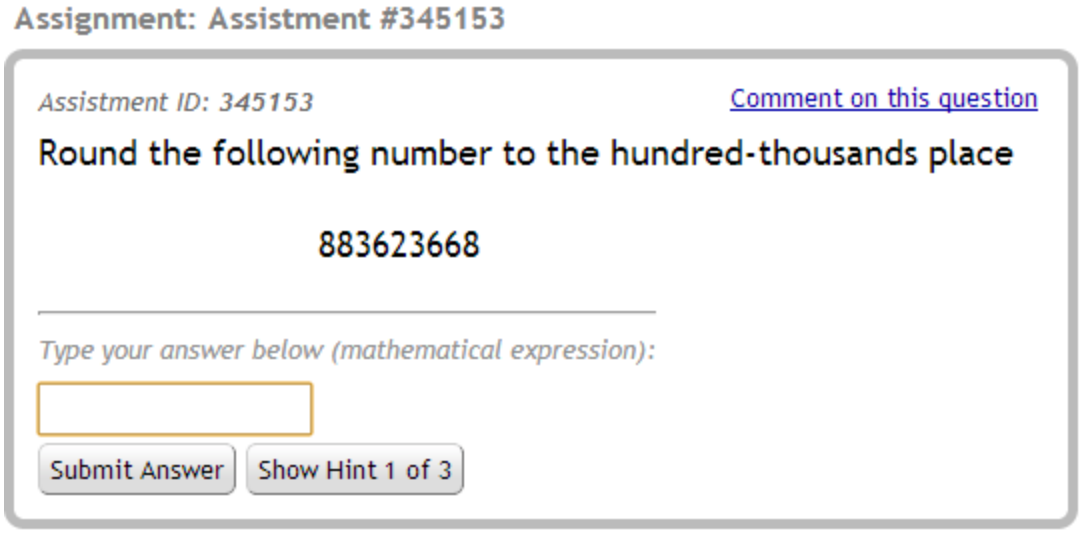
- Number randomly generated between 1111 and 9999
- Student always asked to round to the thousands place
- Answer type is fill in

345171



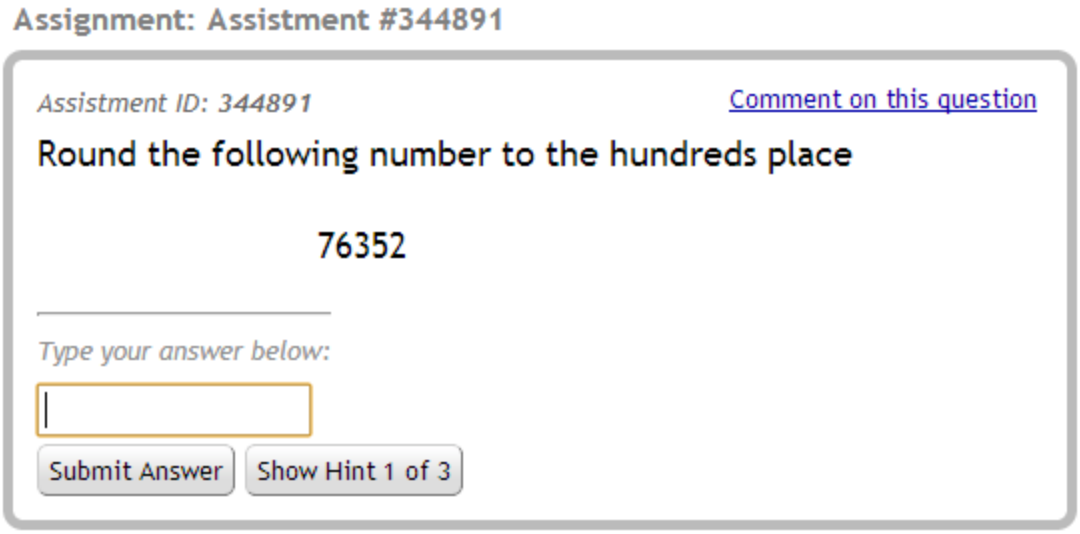
- Number randomly generated between 111111111 and 999999999
- Student always asked to round to the hundreds place
- Answer type is fill in

345153



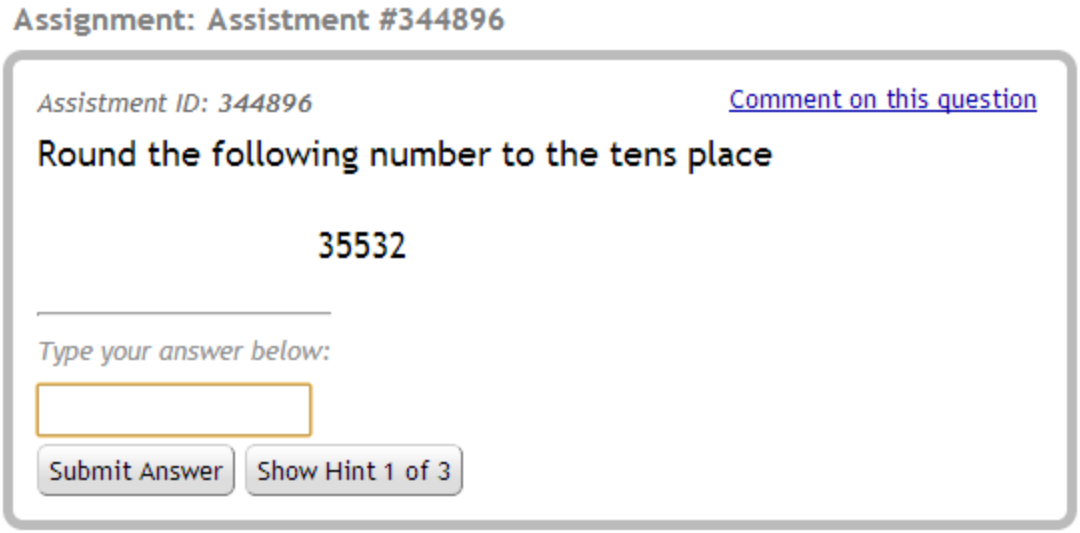
- Number randomly generated between 111111111 and 999999999
- Student always asked to round to the hundred-thousands place
- Answer type is fill in

344891



- Number randomly generated between 11111 and 99999
- Student always asked to round to the hundreds place
- Answer type is fill in

344896



- Number randomly generated between 11111 and 99999
- Student always asked to round to the tens place
- Answer type is fill in

Skill	Grade
4.NF.A.2, Comparing Fractions	4.NF.A.2

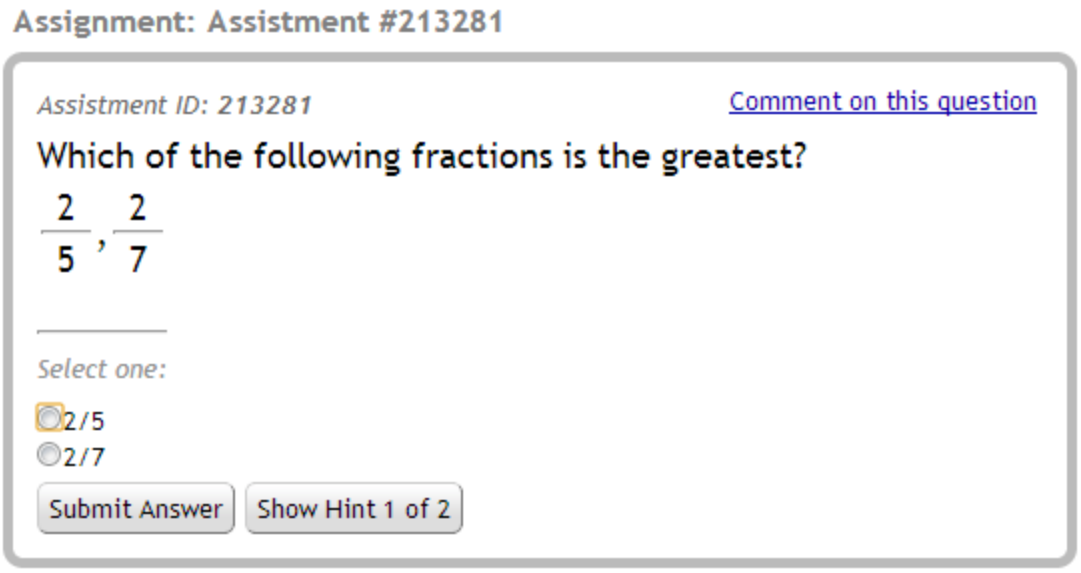
Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2.

THE MASTERY SET

Mastery Problem Set	Number of Templates
89964	4
Number to Master	**Number of Attempts**
3	10

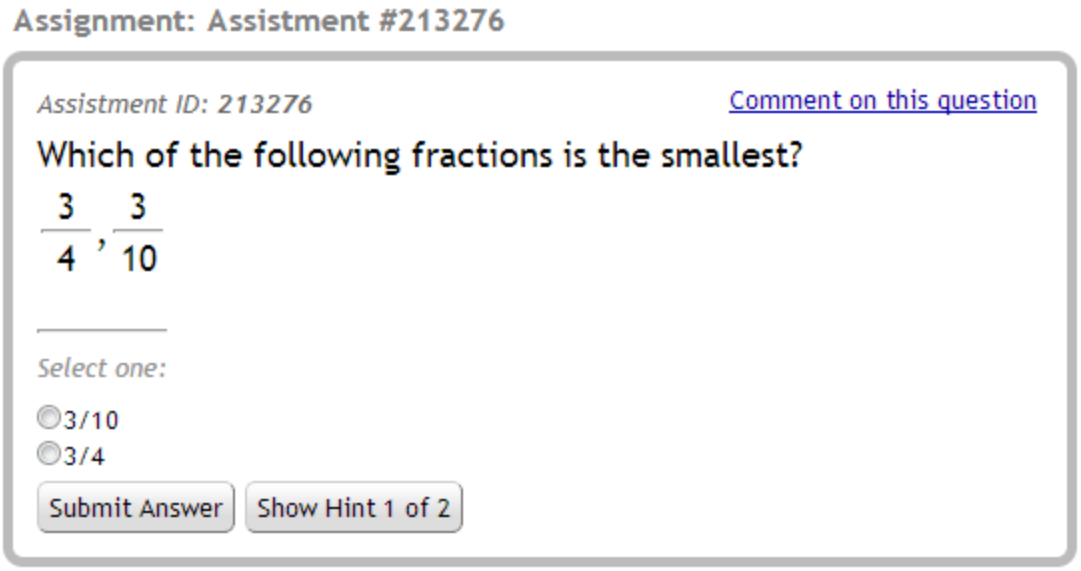
Templates:

213281



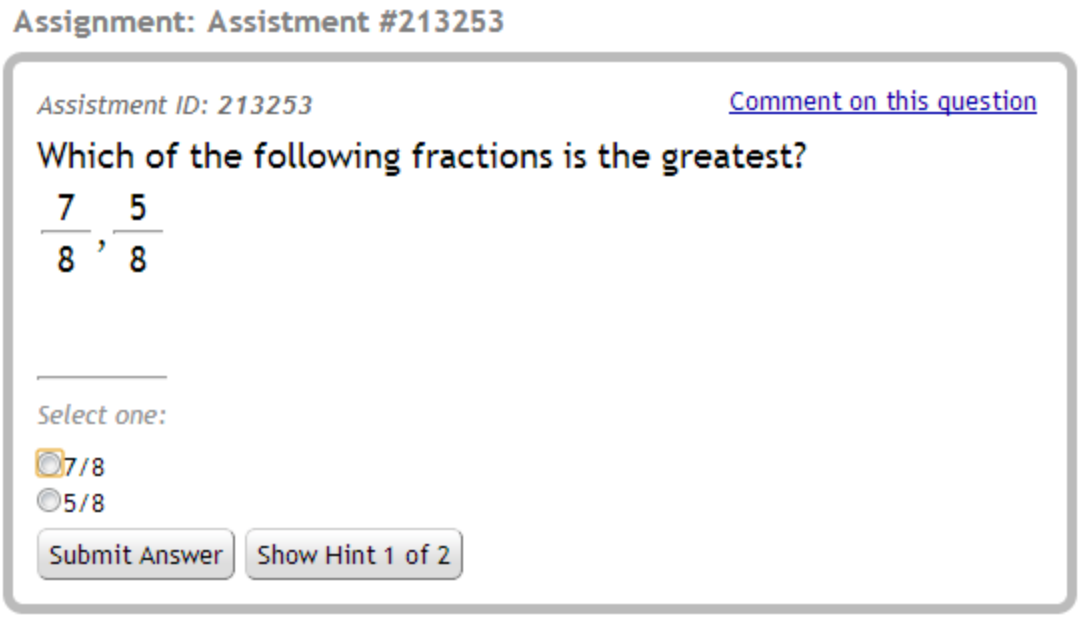
- Student is always asked to choose the greater fraction
- Answer type is multiple choice

213276



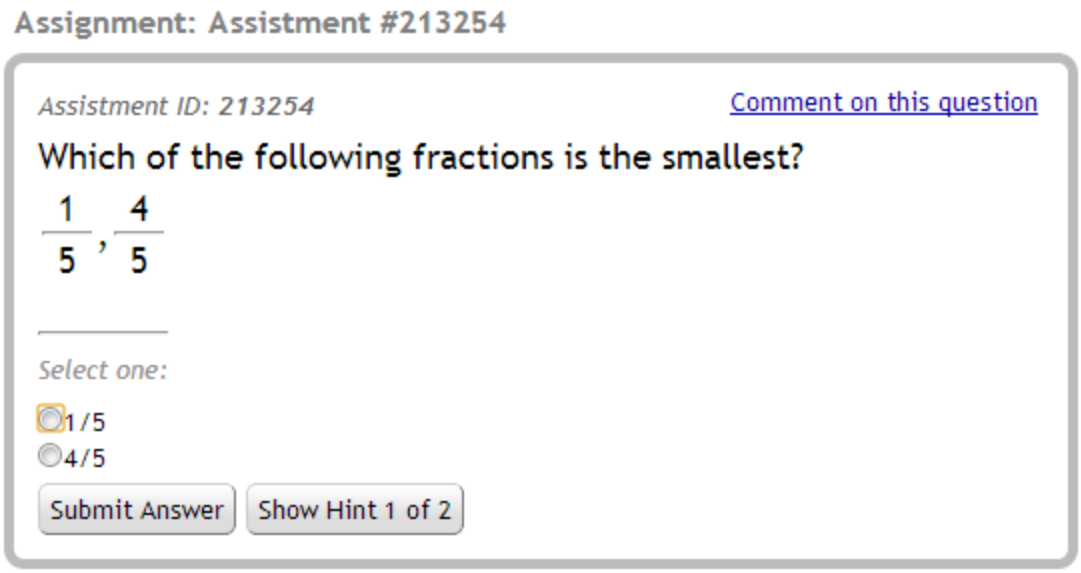
- Student is always asked to choose the greater fraction
- Answer type is multiple choice

213253



- Student is always asked to choose the greater fraction
- Answer type is multiple choice

213254



- Student is always asked to choose the greater fraction
- Answer type is multiple choice

Skill	Grade
5.NBT.A.3a, Read & write numbers to thousandths	5.NBT.A.3a

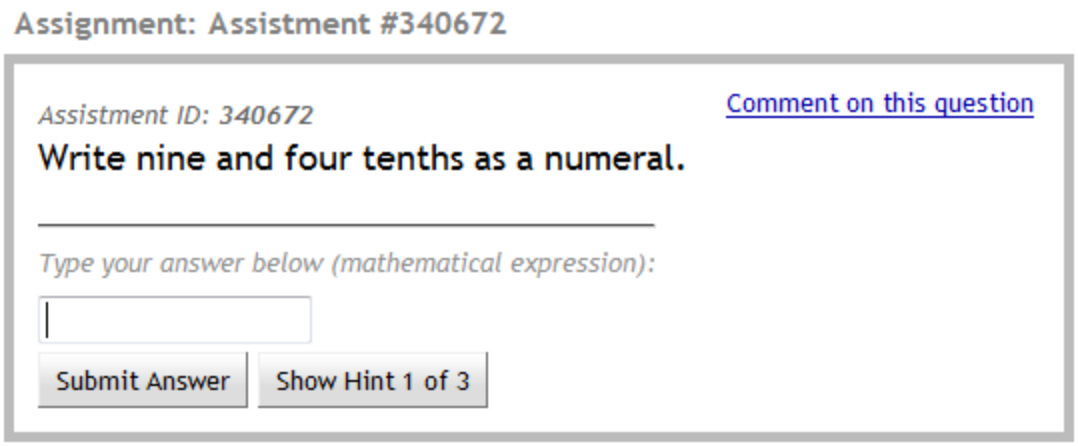
Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).

THE MASTERY SET

Mastery Problem Set	Number of Templates
73681 (words to numeral) 74674 (numeral to words)	6
Number to Master	**Number of Attempts**
3 in a row	

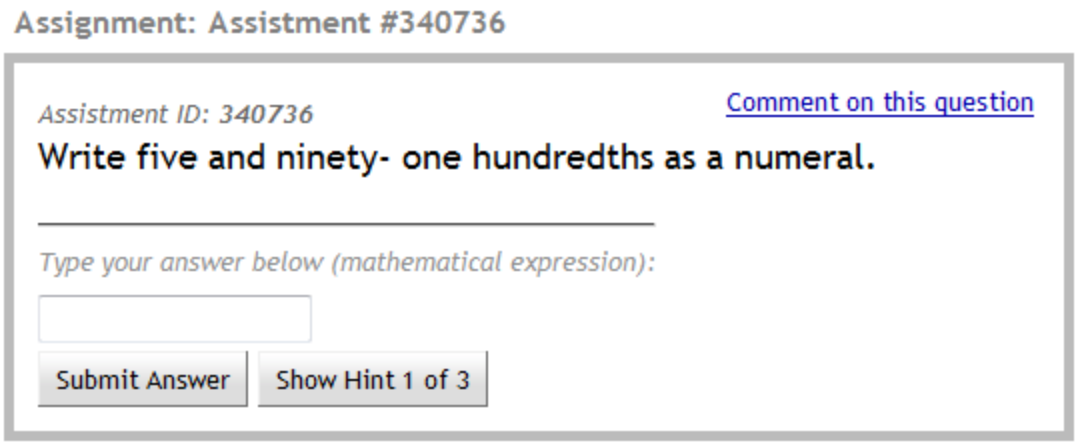
Templates:

340672



- Question always asks to write ____ and ____ tenths as a numeral
- Both can be any digit 1 through 9

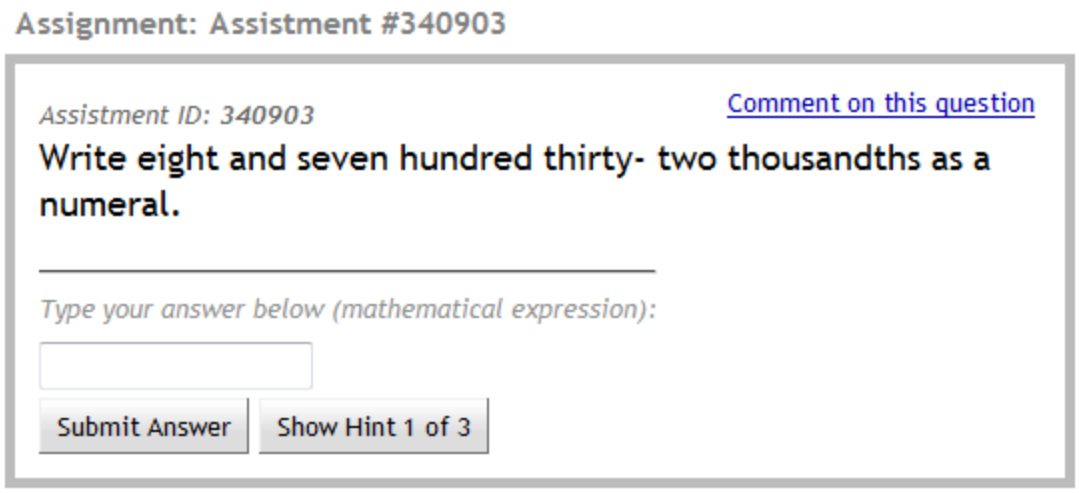
340736



- The question always asks to write ___ and ___ ___ hundredths as a numeral.

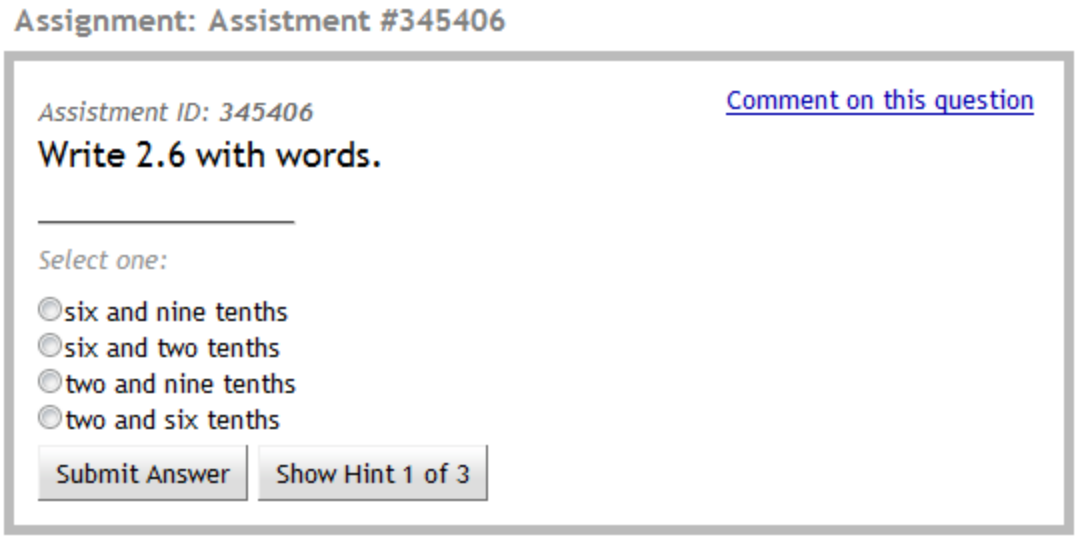
- Can be any digit 1 to 9.

340903



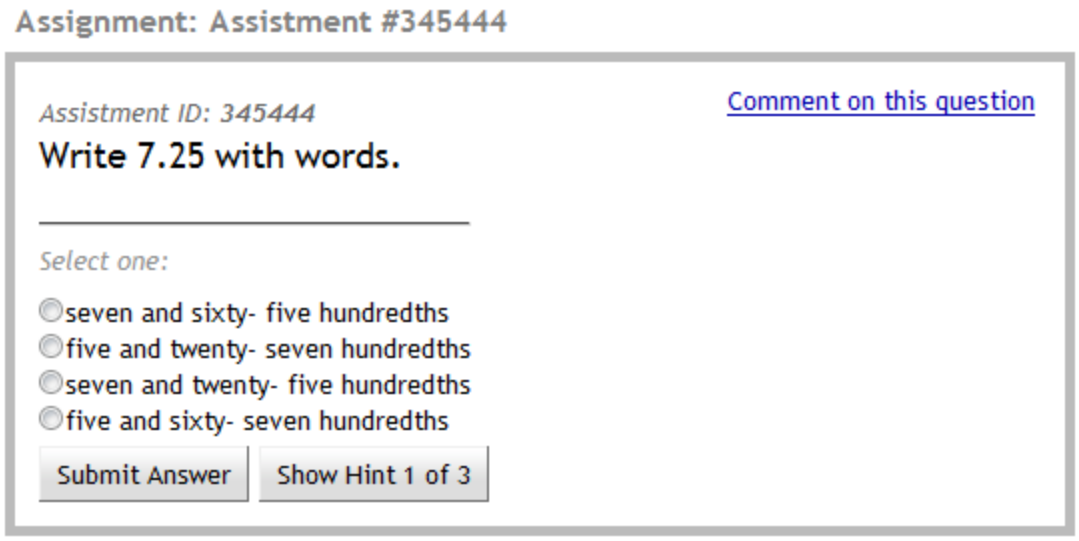
- The question always asks to write ___ and ___ hundred ___-____ thousandths as a numeral.
- Can be any digit 1 to 9.

345406



- The question always asks to write _._ with words.
- Multiple choice to avoid issues with typing in the words.
- Can be any digit 1 to 9.
- Four sets of answers.

345444



- The question always asks to write _.__ with words.
- Multiple choice to avoid issues with typing in the words.
- The tenths can be any digit 1 to 9. The hundredths can be any digit 2 to 9 (difficult to use variables for ___teen).
- Two choices for tenths, two choices for hundredths (one right, one wrong).

345456

Assignment: Assistment #345456

Assistment ID: 345456 Comment on this question

Write 8.732 with words.

Select one:

- seven and eight hundred thirty- two thousandths
- eight and two hundred thirty- seven thousandths
- two and seven hundred thirty- eight thousandths
- eight and seven hundred thirty - two thousandths

Submit Answer | Show Hint 1 of 3

- The question always asks to write _.___ with words.
- Multiple choice to avoid issues with typing in the words.
- The tenths and thousandths can be any digit 1 to 9. Hundredths can be anything 2 to 9 (difficult to use variables for ___teen).
- In the set of four answers, there will be two with the correct value for each palce. The hundredths place stays the same.

Skill	Grade
5.NF.A.1, Equivalent Fractions	5.NF.A.1

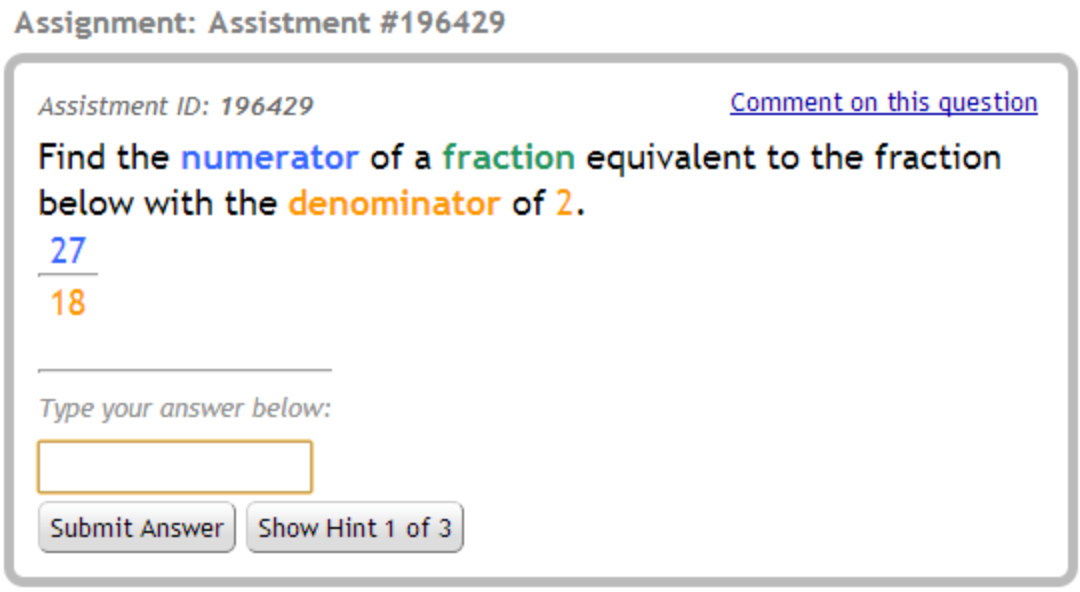
Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators

THE MASTERY SET

Mastery Problem Set	Number of Templates
89915	2
Number to Master	**Number of Attempts**
3	10

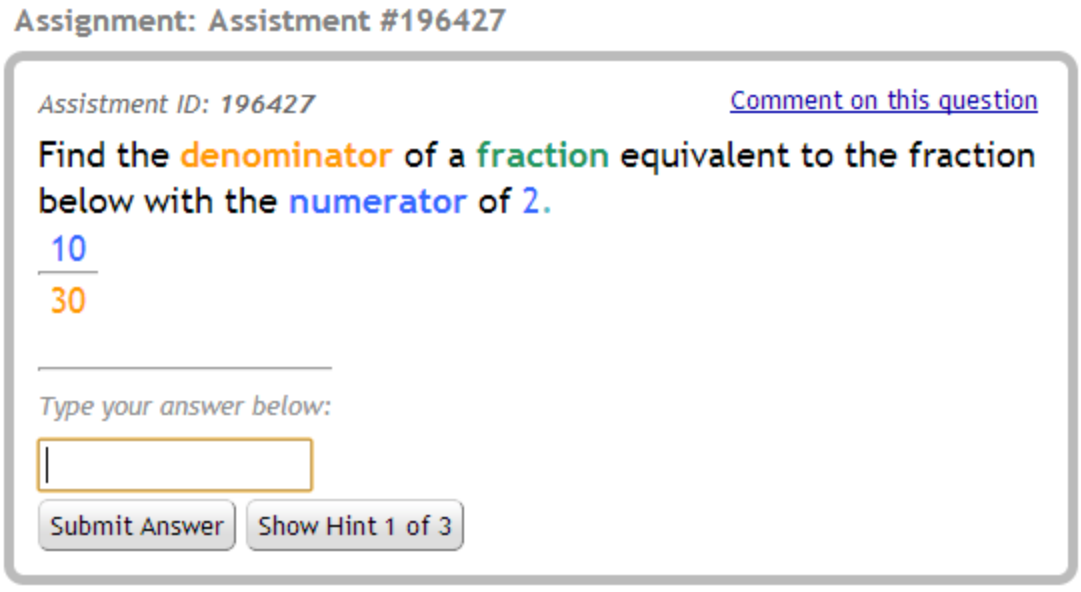
Templates:

196429



- Student always asked to write a fraction equivalent to the given fraction
- Answer type is fill in

208546



- Student always asked to write a fraction equivalent to the given fraction
- Answer type is fill in

Skill	Grade
6.NS.B.4, Greatest common factor, least common multiple, distributive	6.NS.B.4

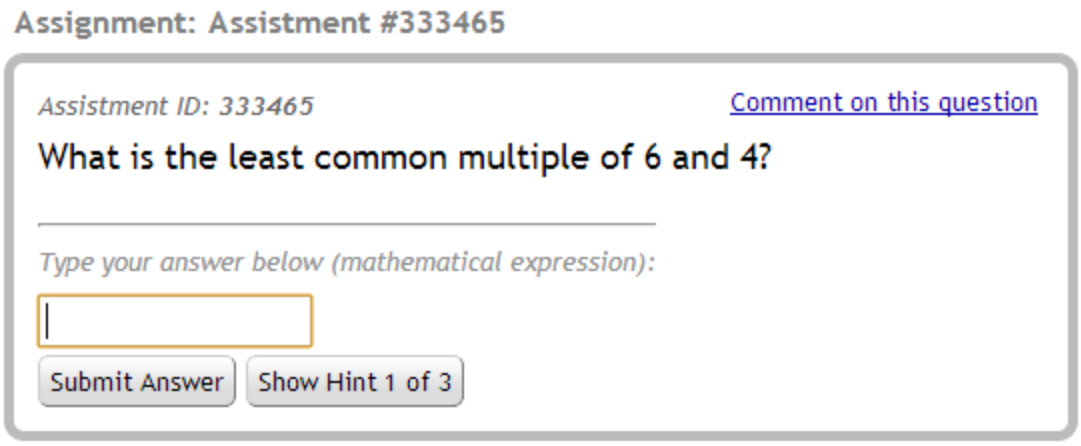
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12

THE MASTERY SET

Mastery Problem Set	Number of Templates
??	8
Number to Master	Number of Attempts
??	

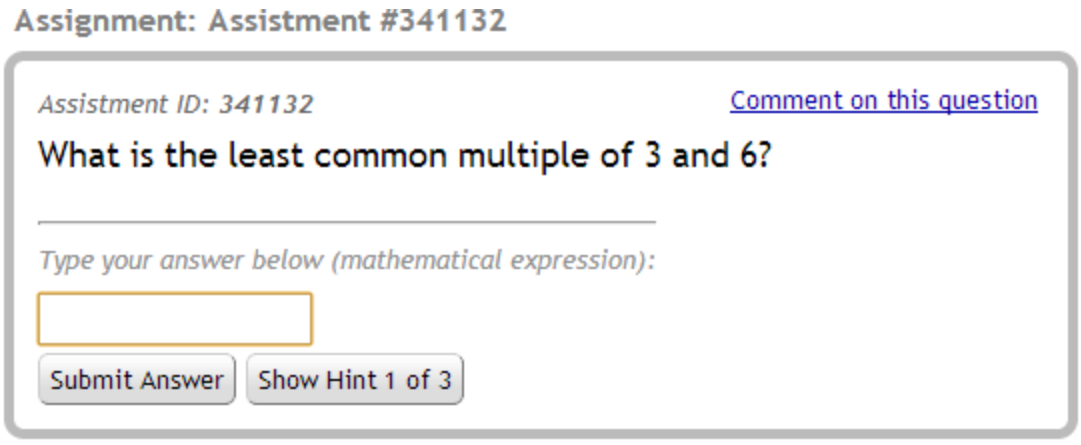
Templates:

333465



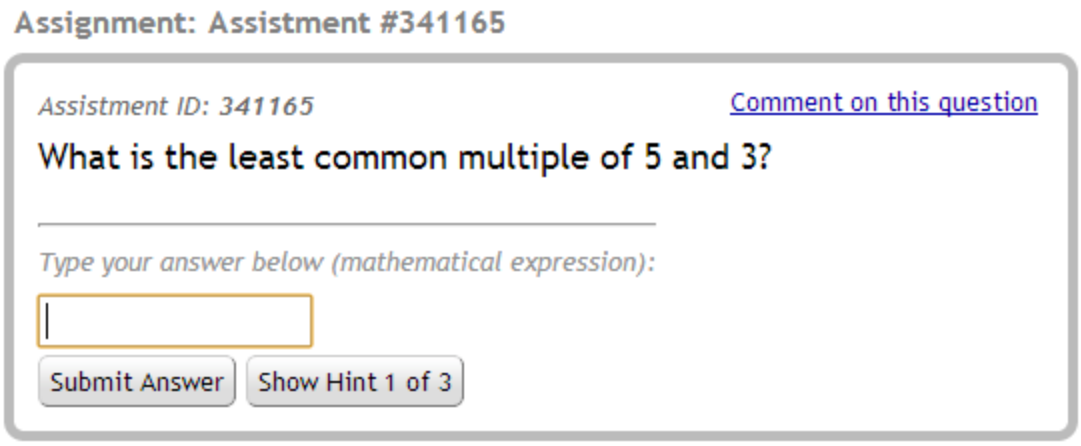
- Question always asks for the least common multiple of ___ and___
- Randomly generated from 9 possible questions

341132



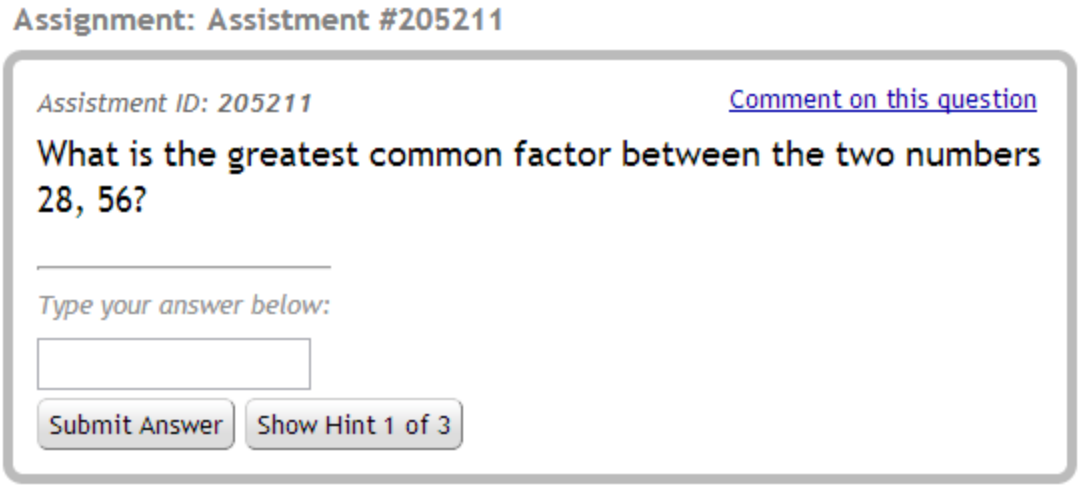
- Question always asks for the least common multiple of ___ and___
- Randomly generated from 9 possible questions

341165



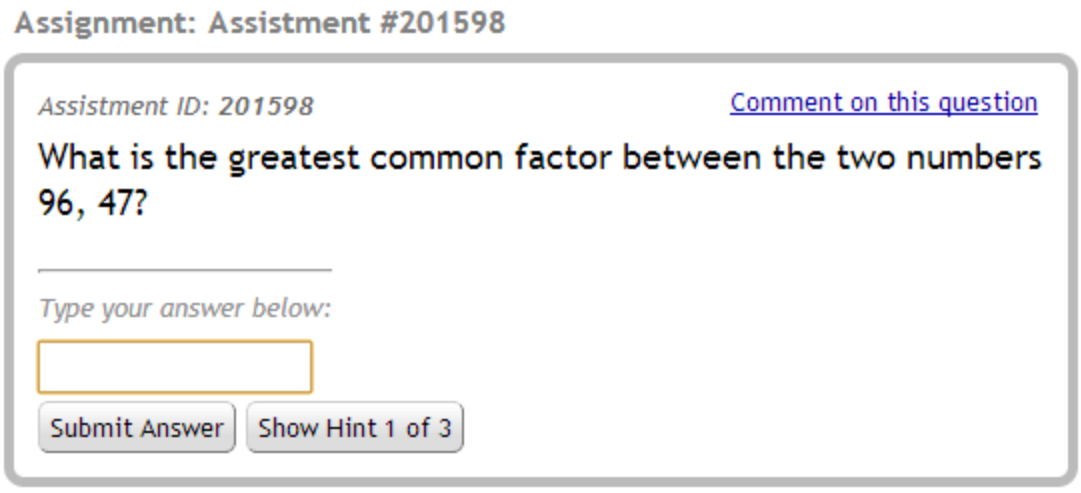
- Question always asks for the least common multiple of ___ and___
- Randomly generated from 9 possible questions

205211



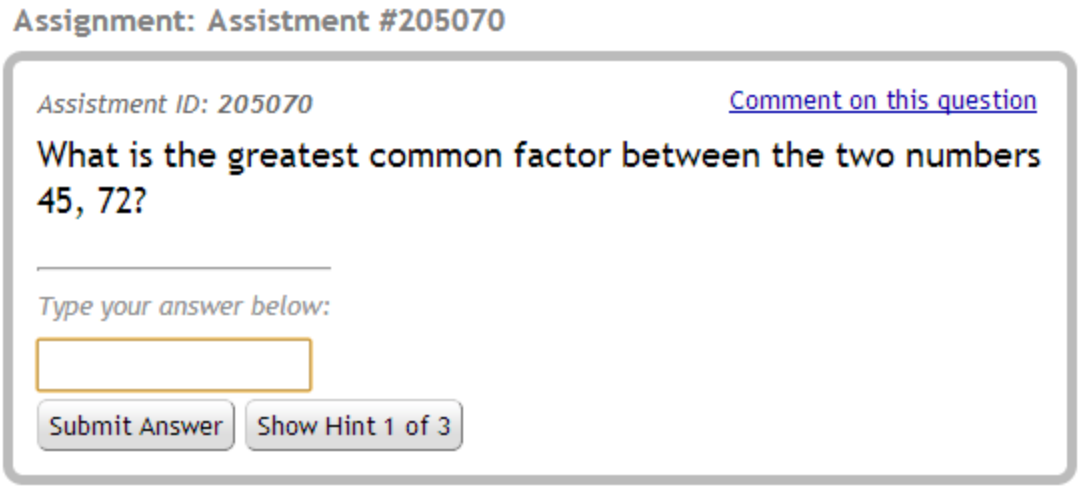
- The question always asks the greatest common factor between two randomly generated numbers

201598



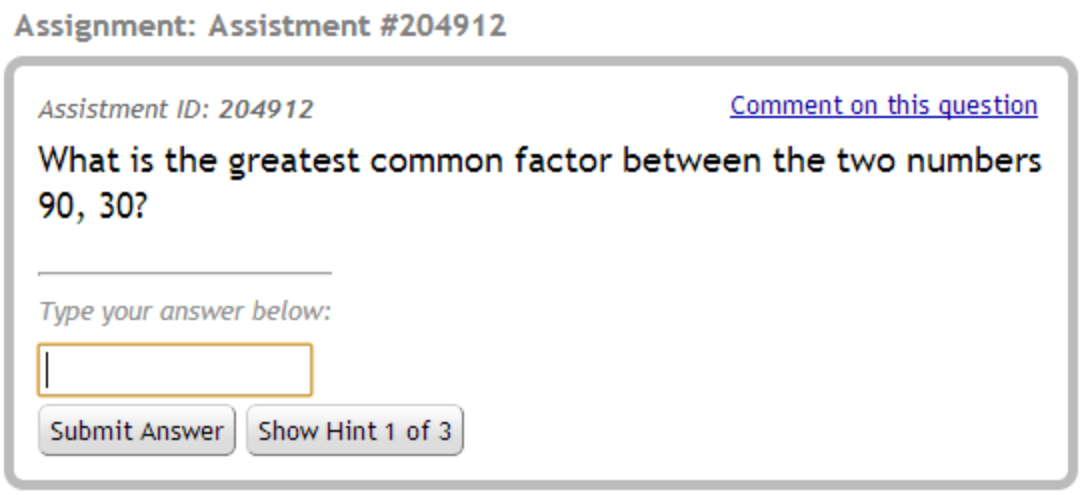
- The question always asks the greatest common factor between two randomly generated numbers

205070



- The question always asks the greatest common factor between two randomly generated numbers

204912



- The question always asks the greatest common factor between two randomly generated numbers

334618

Assignment: Assistment #334618

Assistment ID: 334618 Comment on this question

Write 10+15 in factored form.

This means to write it this way: ■(■+■) with

■ as the greatest common factor, and

■ and ■ as the remaining factors.

Do not put spaces in your answers.

Type your answer below:

Submit Answer | Show Hint 1 of 3

- The question always asks to write __ + __ in a factored form
- The answer is in the form __(__+__)

Appendix C

Searching for Games

Searcher	Searches	found games for :	Notes	2.NBT.A.3	5.NBT.A.3a	6.RP.A.3c	6.NS.B.4	6.NS.C.5	6.EE.A.2b	3.NBT.1	4.NBT.3	5.NBT.4	4.NBT.4	4.NBT.5	4.NBT.6	3.NF.A	4.NF.C	4.NF.A	4.NF.B
Emily	shodor.org	mostly activities (graphs and such) not games		none	none	none	none	none	none	none	none	none	yes	yes	yes	none			
Cristina	phet.colorado.edu	no integers	mostly science	none	none	none	none	none	none	none	none	none	none	none	none	none			
Emily	powermylearning.com	must sign in.	Good source for outside games	none	none	none										none			
	WGBH	can't find the games		none	none		none	none								none			
	http://www.pbs.org/parents/fun-and-games/pbs-kids-activity-search/activity-search-results/?program=&type=&skill=math		connects to other sites	none	none	none			none	none	none	none	none	none	none	none			
	connectedmath.msu.edu		Is this a game site?	none	none	none	none	none	none	none	none	none	none	none	none	none			
	hoodamath.com	add subtract multiplication division		none	none	none	yes	none	none	none	none	none	none	none	none	none			
	http://mrnussbaum.com/standards2/	add, subtract, multiply, divide, prime factorization, fractions	grades 2 and 3 are organized by the common core	yes	none		none	none	none	yes	yes		yes	yes	yes	yes			
	http://www.amblesideprimary.com/ambleweb/maths.htm	a bunch of links	most of the links are useless	none	none		none	none											
	Braining camp		have to pay	none / ?	none / ?		none	none											
	Fun Brain	fractions, add subtract negative numbers, percents, order of operations, decimals, **there is a word to number game here		yes	none	none	none	none								yes	yes		
**	IXL.com	lots of games, by grade	need to be a memeber for extended use	yes												yes	none		
	math-play.com	fractions, adding subtracting, multiplying dividing, decimals	not great games	yes	none		yes	none								yes	none		
	math goodies	not many games		none	none		none	none											
	online math learning	no games		none	none		none	none											
	http://www.coolmath-games.com/1-number-games-01.html	addition, subtraction, negative numbers, decimals	fun games	none	none		none	none										yes	
	http://pbskids.org/cyberchase/math-games/	fractions, perimeter area, decimals, percents, and more	more fun games	none	none		none	none								none	none	none	
	http://www.mathplayground.com/games.html	fraction, decimals, multiplication, area perimeter, percents,	fun games	none	none		none	none								none	none	yes	
	http://www.sheppardsoftware.com/math.htm		lot's of games, kinda boring?	none	none		yes	none								yes	yes	yes	yess
	http://pbskids.org/games/math.html		actual lists of games, younger kids	none	none		none	none								none	none	none	none
	http://www.playkidsgames.com/mathGames.htm	everything you can possibly think of, but no way to find what you want	can create our own games based off their templates	none	none											none	none	none	none
	http://www.aplusmath.com/games/index.html	addition, subtraction, multiplication, division	only those	none	none		none	none	none	none	none	none	none	none	none	none	none	none	none
	http://www.softschools.com/math/games/	addition, subtraction, multiplication, division, decimals, percents, number sense		none	none		none	none								yes	none	yes	none
	http://www.schooltimegames.com/Mathematics.html			none	none		none	none											
	http://www.free-training-tutorial.com																		

Source Site	URL	notes	common core state standard	Skill	Flash? Yes or No	video? Yes or no	Category	comments	websites	comments
braining camp	http://www.brainingcamp.com/resources/math/rounding/interactive.php	Input a number and see what it will be rounded to	2.NBT.A.3	Decimal Rounding	???	no	immediate feedback, simulation		http://illuminations.nctm.org/ActivitySearch.aspx	
funbrain	http://www.funbrain.com/numwords/index.html	type in correct answer for a check, from both words and numbers	2.NBT.A.3	words <-> numbers	???	no	choose difficulty, immediate feedback, real world example			mostly basic math games (+ - * /)
ixl	http://www.ixl.com/math/grade-3/write-numbers-in-words	quiz, words to numbers, no reverse	2.NBT.A.3	words <-> numbers	???	no	quiz, immediate feedback,	not sure i like the smart score		
ixl	http://www.ixl.com/math/grade-3/convert-to-from-a-number	exactly what we're doing	2.NBT.A.3	words <-> numbers	???	no	quiz, immediate feedback,			
ixl	http://www.ixl.com/math/grade-3/place-value-word-problems	quiz, a bit complicated, not quite the subject	2.NBT.A.3	words <-> numbers	???	no	quiz, immediate feedback,			
ixl	http://www.ixl.com/math/grade-2/write-numbers-up-to-1000	quiz	2.NBT.A.3	words <-> numbers	???	no	quiz, immediate feedback,			
ixl	http://www.ixl.com/math/grade-2/write-numbers-up-to-100	quiz	2.NBT.A.3	words <-> numbers	???	no	quiz, immediate feedback,			
math-play	http://www.math-play.com/football-math-place-value-game/football-math-place-value.html	pass to your receiver, then answer a math question to get points. "In what place is the 4 in 7,654?" Multiple choice answer.	2.NBT.A.3	identify place value	Yes	no	point system, iimmediate feedback, non math game feature, time limit	pretty unceremonious game over		
math-play	http://www.math-play.com/math-racing-place-value-game/math-racing-place-value-game.html	race, answer math questions to get powerups	2.NBT.A.3	words to numbers	???	no	game with intermittent math	not sure if there is an ending aside from losing. do not use. doesn't end		
Mr. Nussbaum	http://mrnussbaum.com/placevaluepirates2/	Attack pirates based on the place value hint	2.NBT.A.3	identify place value	Yes	no	point system, immediate feedback, Q&A, Time Limit, scaling difficulty		http://www.mathnook.com/	rounding,
sheppard software	http://www.sheppardsoftware.com/mathgames/placevalue/scooterQuest.htm	answer the questionto earn money, after so many questions, move on	2.NBT.A.3	place value,	???	no	Q&A, no accountablility, scaling difficulty			
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/placevalue/PlaceValuesShapesShoot.htm	choose all that apply	2.NBT.A.3	words <-> numbers	yes	no	Q&A, point system, immediate feedback,			
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/placevalue/mathman_place_digit.htm	pacman	2.NBT.A.3	words <-> numbers	yes	no	point system, immediate feedback, scaling difficulty			
top marks	http://www.topmarks.co.uk/Flash.aspx?f=PVChartv8	activites asking students to make numbers from words, and words from numbers	2.NBT.A.3	words <-> numbers	Yes	no	immediate feedback, Q&A, non game features			
http://www.free-training-tutorial.com	http://www.free-training-tutorial.com/rounding/rounding-spaceships.html	multiple choice quiz	3.NBT.1, 4.NBT.3	rounding to tens place	???	no	quiz, immediate feedback			
http://www.free-training-tutorial.com	http://www.free-training-tutorial.com/rounding/sharks.html	multiple choice quiz	3.NBT.1, 4.NBT.3	rounding to hundreds place	???	no	quiz, immediate feedback, timed			
mrnussbaum.com	http://mrnussbaum.com/halfcourt/	multiplayer rounding game	3.NBT.1, 4.NBT.3	rounding	???	no	choose difficulty, immediate feedback, multiplayer, timed			
mrnussbaum.com	http://mrnussbaum.com/roundingmaster/	rounding quiz game	3.NBT.1, 4.NBT.3	rounding	???	no	immediate feedback, scaling difficulty			
math-play	http://www.math-play.com/simplifying-fractions-game/simplifying-fractions-game.html		3.NF.3	simplifying fractions						
math-play	http://www.math-play.com/baseball-math-simplifying-fractions/simplifying-fractions-game.html		3.NF.3	simplifying fractions						
fun brain	http://www.funbrain.com/fract/index.html		3.NF.A	simplifying fractions						
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/memory_fractions1.htm		3.NF.A							
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/memory_equivalent3.htm		3.NF.A							
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/equivalent_fractions_shoot.htm		3.NF.A							
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/mathman_equivalent_fractions.htm		3.NF.A							
softschools	http://www.softschools.com/math/fractions/games/		3.NF.A							
softschools	http://www.softschools.com/math/fractions/equivalent_fractions/games/		3.NF.A							
mrnussbaum.com	http://mrnussbaum.com/pizza_game/	sorta confusing	3.NF.A.3	equivalent fractions	???	??	Use skills			
mrnussbaum.com	http://mrnussbaum.com/fractiondolphins/		3.NF.A.3	equivalent fractions	???	??	use skills			
amblesideprimary	http://www.amblesideprimary.com/ambleweb/mentalmaths/subtractiontest.html	Solve problems of chosen difficulty for a high score	4.NBT.4	Subtraction	???	no	varying difficulty, immediate feedback, point system		http://www.mathgametime.com/	
http://funschool.kaboose.com	http://funschool.kaboose.com/formula-fusion/games/game_addition_attack.html	multiple choice game	4.NBT.4	addition	???	no	immediate feedback, scaling difficulty			
http://funschool.kaboose.com	http://funschool.kaboose.com/formula-fusion/games/game_lunar_lander.html	multiple choice game	4.NBT.4	addition	???	no	immediate feedback, scaling difficulty			
http://funschool.kaboose.com	http://funschool.kaboose.com/formula-fusion/games/game_math_popper.html	multiple choice game	4.NBT.4	addition	???	no	immediate feedback, scaling difficulty			

Source Site	URL	notes	common core state standard	Skill	Flash? Yes or No	video? Yes or no	Category	comments	websites	comments
http://www.free-training-tutorial.com	http://www.free-training-tutorial.com/addition/addition-sharks.html	multiple choice quiz	4.NBT.4	addition	???	no	quiz, immediate feedback, choose difficulty			
http://www.free-training-tutorial.com	http://www.free-training-tutorial.com/addition/addition-dragons.html	multiple choice quiz	4.NBT.4	addition	???	no	quiz, immediate feedback, choose difficulty			
http://www.free-training-tutorial.com	http://www.free-training-tutorial.com/addition/addition-empire-state.html	multiple choice quiz	4.NBT.4	addition	???	no	quiz, immediate feedback, choose difficulty			
http://www.fuelthebrain.com	http://www.fuelthebrain.com/Game/play.php?ID=69	multiple choice game	4.NBT.4	subtraction	???	no	immediate feedback, choose difficulty, point system, time limit			
http://www.sheppardsoftware.com	http://www.sheppardsoftware.com/mathgames/fruitshoot/fruitshoot_subtraction.htm	multiple choice game	4.NBT.4	subtraction	???	no	immediate feedback, choose difficulty, point system, time limit			
interactivestuff	http://www.interactivestuff.org/sums4fun/buildbug.html	solve addition, subtraction, multiplication problems to "build a bug"	4.NBT.4, 4.NBT.5	addition, subtraction, multiplication	???	no	time limit			
mrnussbaum.com	http://mrnussbaum.com/draggablemain/index3/	quiz game with interactive paper tool	4.NBT.4, 4.NBT.5, 4.NBT.6	addition, subtraction, multiplication, division	???	no	choose difficulty, immediate feedback			
shodor	http://www.shodor.org/interactivate/activities/ArithmeticQuiz/	timed in fill in the blank quiz	4.NBT.4, 4.NBT.5, 4.NBT.6	addition, subtraction, multiplication, division	java	no	choose difficulty, immediate feedback, time limit			
shodor	http://www.shodor.org/interactivate/activities/ArithmeticFour/	multiplayer connect four game	4.NBT.4, 4.NBT.5, 4.NBT.6	addition, subtraction, multiplication, division	java	no	choose difficulty, immediate feedback, time limit, multiplayer			
kidsnumbers	http://www.kidsnumbers.com/long-division.php	Solve long division problems with help and feedback	4.NBT.6	Long Division	???	no	music, immediate feedback, skill practice			
math playground	http://www.mathplayground.com/HauntedFractions/escape_from_fraction_manor_cm.html		4.NF.A	comparing different fractions			game then questions			
mathplayground	http://www.mathplayground.com/ASB_TugTeamFractions.html	comparing fractions	4.NF.A	comparing fractions						
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/Balloons_fractions2.htm		4.NF.A							
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/memory_fractions3.htm		4.NF.B							
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/fractions/FractionsToDecimals.htm		4.NF.C							
math-play	http://www.math-play.com/football-math-decimals-place-value/football-math-decimals-place-value.html	same as football above, but with decimals	5.NBT.3	identify place value	Yes	no	answer questions to confirm gameplay points	pretty unceremonious game over		
BBC	http://www.bbc.co.uk/education/mathsfile/shockwave/games/roundoff.html	Round Decimals to See Pythagoras do Stuff	5.NBT.4	Decimal Rounding	No, but Shockwave	no	immediate feedback		http://www.arcademicskillbuilders.com/	competition games
math-play	http://www.math-play.com/baseball-math-rounding-decimals/rounding-decimals.html	Rounding Decimals with Baseball in between	5.NBT.4	decimal rounding	maybe	no				
bbc	http://www.bbc.co.uk/education/mathsfile/shockwave/games/roundoff.html	multiple choice, round to certain number of digits	5.NBT.A.3a	rounding decimals	???	no	multiple choice, quiz	doesn't use tenths, hundredths, etc		
free training tutorial	http://www.free-training-tutorial.com/decimal/place-value-decimal-ducks.html	click on right place value	5.NBT.A.3a	rounding decimals						
funbrain	http://www.funbrain.com/tens/index.html?Grade=6	place value quiz, thousands to ten thousandths	5.NBT.A.3a	decimals, place value	???	no				
math-play	http://www.math-play.com/rounding-decimals-game-1/rounding-decimals-game.html	question, then try to score goal, question more important	5.NBT.A.3a	rounding decimals	???	no	multiple choice, quiz			
math-play	http://www.math-play.com/football-math-decimals-place-value/football-math-decimals-place-value.html	football game, with decimals	5.NBT.A.3a	rounding decimals	???	no	quiz			
sheppard software	http://www.sheppardsoftware.com/mathgames/decimals/scooterQuestDecRound.htm	scooter quest (choose right door) rounding decimals	5.NBT.A.3a	rounding decimals	???	no	multiple choice, doesn't matter if get right or wrong			
basic-mathematics	http://www.basic-mathematics.com/least-common-multiple-game.html	You have 2 minutes to answer questions	6.NS.4	least common multiple	no	no			http://www.numbernut.com/	
fun4thebrain	http://www.fun4thebrain.com/beyondfacts/gcfsketch.html	answer the questions and then advance through the level	6.NS.4	greatest common factor			game with intermittent math			
Hooda Math	http://hoodamath.com/games/factorfeeder.php	find the factors of a given number	6.NS.4	factoring			use skills to get points		http://www.mathwarehouse.com/games/maths-games-online.php	some fraction games
math-play	http://www.math-play.com/Factors-and-Multiples-Jeopardy/Factors-and-Multiples-Jeopardy.html	jeopardy based on greatest common factor and least common multiple. Can be played with one person or a team of people	6.NS.4	gcm, lcm			use skills to get points			
math-play	http://www.math-play.com/Factors-Millionaire/Factors-Millionaire.html	do you want to be a millionaire with factor questions	6.NS.4	factoring			use skills to get points			
online math learning	http://www.onlinemathlearning.com/factor-games.html	Click on the squares to multiply the numbers so that they equal the value under the word “number” Although it is called multiplication Station, you are essentially looking for the factors of the number. Increase your factoring and multiplication skills.	6.NS.4	multiplication and factoring	??	??	use skills to get points			
sheppard software	http://www.sheppardsoftware.com/mathgames/fractions/GreatestCommonFactor.htm	shoot the fruit with the greatest common factor	6.NS.4	greatest common factor			use skills to get points			
toon university	http://www.toonuniversity.com/flash.asp?err=499&engine=14	Monkey basting a set of turkeys, each with an answer to a factor question	6.NS.4	factoring			use skills to get points			
bbc	http://www.bbc.co.uk/education/mathsfile/shockwave/games/saloonsnap.html	are they equal?, short, not very fun	6.RP.A.3c	percents	shockwave	no				
kids math games online	http://www.kidsmathgamesonline.com/numbers/percentages.html	add different patches of land to balance percents	6.RP.A.3c	percents, decimals						

Source Site	URL	notes	common core state standard	Skill	Flash? Yes or No	video? Yes or no	Category	comments	websites	comments
math goodies	http://www.mathgoodies.com/lessons/vol4/challenge_vol4.html	percent	6.RP.A.3c	percents	???	no				
math goodies	http://www.mathgoodies.com/games/conversions/	quiz	6.RP.A.3c	percents	???	no	Q&A			
math play	http://www.math-play.com/Decimals-and-Percents/Decimals-and-Percents.html	has errors, quiz game, points	6.RP.A.3c	percents	???	no				
math playground	http://www.mathplayground.com/balloon_invaders_percent.html	choose the correct answer	6.RP.A.3c	percents	???	no		not good		
math playground	http://www.mathplayground.com/matching_fraction_percent.html	matching	6.RP.A.3c	percents	???	no				
math playground	http://www.mathplayground.com/Decention/Decention.html	gives you three tries, then shows correct answer	6.RP.A.3c	percents	yes	no				
mathopolis	http://www.mathopolis.com/questions/q.php?id=877&site=1&ref=/percentage.html&qs=877_878_879_1301_1302_880_1303_1304	quiz	6.RP.A.3c	percents	???	no				
PBS kids	http://pbskids.org/cyberchase/math-games/mission-magnetite/	percent, fraction, and picture	6.RP.A.3c	percents	???	no				
quia	http://www.quia.com/cb/34887.html	jeopardy	6.RP.A.3c	percents	yes	no				
soft schools	http://www.softschools.com/math/percent/games/	color in _%	6.RP.A.3c	percents	???	no				
xpmath	http://www.xpmath.com/forums/arcade.php?do=play&gameid=91	identify percentage by fraction	6.RP.A.3c	percents	???	no				
xpmath	http://www.xpmath.com/forums/arcade.php?do=play&gameid=31	percent = what decimal?	6.RP.A.3c	percents	???	no				
	http://www.funbrain.com/cgi-bin/pw.cgi	word problem using percents	6.RP.A.3c	percents	???	no	real world (tips)			
bgfl	http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/percentages/index.htm	teaching tool, uses pounds not dollars	7.RP.A.3	percents	???	no				
fun brain	http://www.funbrain.com/penguin/	figure out tip	7.RP.A.3	percents	???	no				
math playground	http://www.mathplayground.com/percent_shopping.html	use prices	7.RP.A.3	percents	yes	no	real world			
math-play	http://www.math-play.com/Sales-Tax/Sales-Tax.html	find sales tax, give correct change	7.RP.A.3	percents	???	no				
sheppardsoftware	http://www.sheppardsoftware.com/mathgames/integers/FS_NumberLine_integer.htm		someone???	integers						
Connected Math	http://connectedmath.msu.edu/CD/Grade6/FactorGame/index.html	tic tac toe with factors						do not use		
Coolmath4kids										
free-training-tutorial	http://www.free-training-tutorial.com/place-value/clickthedigit.html	collect ducks by choosing the right place		place value	???	no	simple, quick		bbc	
Math is fun										
mathgoodies	http://www.mathgoodies.com/factors/prime_factors.html	factor tree ending with prime numbers		prime factoring	yes		immediate feedback			
shodor	http://www.shodor.org/interactivate/activities/Factorize/	shows a number, asks to find a factor pair, then draw		factor pairs						
softschools	http://www.softschools.com/mathg.jsp	never loaded								
toon university	http://www.toonuniversity.com/flash.asp?err=499&engine=14	Monkey basting a set of turkeys that are labled with Composite, Prime, neither, and a number is given.		Prime and composite						
	http://mrnussbaum.com/hotel/			words<->numbers, decimals						

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
Kevin	2.NBT.A.3		Reading writing whole numbers		http://www.kutasoftware.com/FreeWorksheets/PreAlg					
						334207	x	change to have colors		
			73534	w->n	place and cookie	334218	x	and the final hint shows question	For the second hint use the picture. And use color for each spot so you can use color with the numbers.	
			73570	n->w	place and cookie	334229	x			
			73655	w->n	football&soccer	334232	x			
			73656	n->w	football&soccer	334271	x		Add the picture in the second hint.	
						334272	x	I see that you are trying to test the students on the dash. I say we do other numbers there instead		
Games for	2.NBT.A.3	Title	Game Link	Type	Time to get started					
		Cookie Dough Spell the Number	http://www.funbrain.com/numwords/index.html	words <-> numbers	instructions when game starts	choose difficulty, immediate feedback, real world example		type in correct answer for a check, from both words and numbers		
		Scooter Quest	http://www.sheppardsoftware.com/mathgames/placevalue/s	place value	instruction screen	Q&A, no accountablility, scaling difficulty		answer the questionto earn money, after so many questions, move on, does not tell why wrong		
	???	Place Value Charts	http://www.topmarks.co.uk/Flash.aspx?f=PVChartv8	words <-> numbers	however long it takes to figure out what everything means	immediate feedback, Q&A, non game features		activites asking students to make numbers from words, and words from numbers		
		Place Value Pirates	http://mrnussbaum.com/placevaluepirates2/	place value	enter name, instruction screen	point system, immediate feedback, Q&A, Time Limit, scaling difficulty		keep answering questions right, points, no big ending		
		football	http://www.math-play.com/football-math-place-value-game/football-math-place-value.html	place value	short loading screen, instruction screen	point system, immediate feedback, non math game feature, time limit		skill game, then math, not a great game		
		Place Value	http://www.sheppardsoftware.com/mathgames/placevalue/F	place value	negligible loading screen, instruction screen	Q&A, point system, immediate feedback,		probably will get rid of		
		palce value pac man	http://www.sheppardsoftware.com/mathgames/placevalue/r	place value	short loading screen, 2 instruction screens	point system, immediate feedback, scaling difficulty		figure out which ghost to eat		

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
		Rounding Interactive	http://www.brainingcamp.com/resources/math/rounding	rounding	none	immediate feedback, simulation		Input a number and see what it will be rounded to. tool to learn rounding		
Kevin	5.NBT.A.3a									
						340672	x	Good your last hint is wrong but the rest of it is good.	For the image. Lets do an image that shows the words. Look at this one 114505 in the hints. I like this image because it uses the words. not 1/10 and 1/100	
						340736	x			
						340903	x			
						345406			These have a fatal flaw you can by CHANCE have two equal answer choices but only one is marked correct.	fixed
						345444			These have a fatal flaw you can by CHANCE have two equal answer choices but only one is marked correct.	fixed
						345456		this one still does not work.		
Games for	5.NBT.A.3a	Title	Game Link	Type	Time to get started					
		football math	http://www.math-play.com/football-math-decimals-place-value/football-math-decimals-place-value.html	decimals	short loading screen, instruction screen			possibly too much randomness/ for first part, frustrating		
		decimal ducks	http://www.free-training-tutorial.com/decimal/place-value-decimal-ducks.html	rounding decimals	none			choose correct decimal place		
		scooter quest	http://www.sheppardsoftware.com/mathgames/decimals/sc	rounding decimals	instruction screen			choose correct way to round number		
		soccer math	http://www.math-play.com/rounding-decimals-game-1/rounding-decimals-game.html	rounding decimals	short loading screen, instruction screen			soccer game, question, then try to score. quesitons more important for points then soccer.		
Emily	6.NS.B.4	xxxx	Factors		http://www.kutasoftware.com/FreeWorksheets/PreAlg					
					Least common multiple (9 qs)	333465	x			
					Least Common Multiple 2 (9qs)	341132	x			
					Least Common Multiple 3 (9qs)	341165	x		361168-361177	

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
								Now we need to think about how to fulfill the second half of the standard.		
					GCF	205211	x	You can use these		
					GCF	201598	x	You can use these		
					GCF	205070	x	You can use these		
					GCF	204912	x	You can use these		
					distributive	334467		this won't work, just wanted to show you what my original idea was		
					distributive	334618	x			
					prime factorization	335033		Why are we doing prime factorization? I forget. Also we have already done this. Look at the WPI skills.		
Games for	6.NS.4	Title	Game Link	Type						
		who wants to be a millionare	http://www.math-play.com/Factors-Millionaire/Factors-Millionaire.html	gcm lcm						
		fruit shoot	http://www.sheppardsoftware.com/mathgames/fractions/Gr	gcm lcm						
Emily	5.NF.A.1				look for games to see if we should use					
								These are not even templates. Why are you providing instances?	These are the skill equivalent fractions. They live in 4 NF.1 and 4.NF.2	
						209119				
						209115				
						209114				
						209113				
						209112				
						209110			377894, 377895,377896,377897,377898,377899,377900,377901,377	
						209109				
						209080				
						209078				
						209076				
						209075				

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
						209073				
						209071				
						209070				
						http://www.assistments.org/teacher/public_				
Games for		Title	Game Link	Type						
		Baseball Math	http://www.math-play.com/baseball-math-simplifying-fractions/simplifying-fractions-game.html	equivalent fractions						
		Fraction Dolphins	http://mrnussbaum.com/fractiondolphins/	equivalent fractions						
Emily	4.NF.A									
	4.NF.A.2					213281	x			
						213276	x			
						213253	x			
						213254	x			
						243752	x			
						243878	x			
						243879	x			
						243880	x			
						244116	x			
						244146	x			
						244147	x			
						244148	x			
						213281			378004-378013	
						213276				
						213253				
						213254				
Games for		Title	Game Link	Type						
		Balloon Pop	http://www.sheppardsoftware.com/mathgames/fractions/Ba	comparing fractions						
		Tug Team	http://www.mathplayground.com/ASB_TugTeamFractions	comparing fractions						
Mike	6.EE.2 b		Understand math terms in expressions		http://www.kutasoftware.com/FreeWorksheets/PreAlg					
Games for	6.EE.2b	Title	Game Link	Type						
Mike	3.NBT.1									

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
					The number to round will always be between 111 and 999. The student will always be asked to round to the tens place. The student will always be asked to round to the tens place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208545	x			
					The number to round will always be between 1111 and 9999. The student will always be asked to round to the hundreds place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208546	x			
					The number to round will always be between 111 and 999. The student will always be asked to round to the hundreds place. The student will always be asked to round to the hundreds place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	344885	x			
		Study Problem Set	71005							
Games for	3.NBT.1	Title	Game Link	Type						
		Rounding Spaceships	http://www.free-training-tutorial.com/rounding/rounding-spaceships.html	quiz, immediate feedback						
		Rounding Sharks	http://www.free-training-tutorial.com/rounding/sharks.html	quiz, immediate feedback, timed						
Mike	4.NBT.3									
					The number to round will always be between 111 and 999. The student will always be asked to round to the tens place. The student will always be asked to round to the tens place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208545	x			
					The number to round will always be between 1111 and 9999. The student will always be asked to round to the hundreds place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208546	x			
					The number to round will always be between 11111 and 99999. The student will always be asked to round to the ten-thousands place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208547	x			

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
					The number to round will always be between 1111111 and 9999999. The student will always be asked to round to the ten-millions place. Each digit is chosen randomly, from 1-9. Answer type is Fill In	208549	x			
					Make a 111 and 999 rounded to the hundreds place	344885	x			
					Make a 1111 and 9999 rounded to the thousands place	344888	x			
					Make a 1111111 and 9999999 Rounded to the hundreds place	345171	x			
					Make a 1111111 and 9999999 Rounded to the hundred thousands place	345153	x			
					Make a 11111 and 99999 Rounded to the hundred place	344891	x			
					Make a 11111 and 99999 Rounded to the tens place	344896	x			
		Problem Set	74985							
Games for	4.NBT.3	Title	Game Link	Type						
		Rounding Spaceships	http://www.free-training-tutorial.com/rounding/rounding-spaceships.html	Multiple Choice						
		Rounding Master	http://mrnussbaum.com/roundingmaster/	Who wants to be a millionaire						
Mike	5.NBT.4									
					1.111 to 9.999, round to hundredths place	114505	x			
					1.1 to 9.9 round to ones place	114456	x			
					1.11 to 9.99 round to tenths place	111986	x			
					111 to 999 round to tens place	30071	x		115566	
					111 to 999 round to hundreds place	30072	x		124001	
					1111 to 9999 round to thousands place	30073	x			
		Problem Set	81944							
Games for	5.NBT.4	Title	Game Link	Type						
		Baseball Math	http://www.math-play.com/baseball-math-rounding-decimals/rounding-decimals.html							
Mike	4.NBT.4									
					Subtraction of double-digit whole numbers. No carrying involved. Both digits of first number are randomized from 5 to 9, both digits of second number are always 4 or less.	351641	x			

	CCSS	Skill	Problem Set		Note	Template Number	Approved	Notes		
					Subtraction of double-digit whole numbers. Always involves carrying/borrowing. Second digit of first number random from 0 to 4, second digit of second number random from 5 to 9	359923	x			
					Subtraction of double-digit from triple-digit whole numbers. Never involves carrying. Same as 56810, except first number also has a hundreds digit.	359924	x			
					Subtraction of double digit numbers from triple-digit numbers. Always involves carrying. Second and third digits of first number random from 1 to 4, both digits of second number random from 5 to 9.	359925	x			
Games for	4.NBT.4	Title	Game Link	Type						
		Ambleweb Subtraction Machine	http://www.amblesideprimary.com/ambleweb/mentalmaths/							
		Build a Bug	http://www.interactivestuff.org/sums4fun/buildbug.html							
Mike	4.NBT.5									
					Multiplication of a triple-digit number by a single-digit number. Each digit of first number random from 1 to 9, second number random from 3 to 9.	359926	x			
					Multiplication of two double-digit numbers, Both numbers randomized from 10 to 99	359927	x			
Games for	4.NBT.5	Title	Game Link	Type						
		Build a Bug	http://www.interactivestuff.org/sums4fun/buildbug.html							
Mike	4.NBT.6									
					Division with remainders. Students asked for remainder (may be 0)	62832	x			
					Basic long division. Answer between 16 and 19 (no remainders)	65935	x			
Games for	4.NBT.6	Title	Game Link	Type						
		Snork's Long Division	http://www.kidsnumbers.com/long-division.php							

Appendix D

Presentation to Teachers

ASSiSTments™

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Change work to play.

New Common Core Content with a twist.

The common core state standards emphasize fluency. Practice is important to achieve this goal but why not practice using a game? In the following problem sets students will complete a pre-test, **play one of two games,** and finish with a post-test.

If you have any questions e-mail assistments@wpi.edu

Common Core Skills Covered

ASSISTments™

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Click on a standard to see the games and the problem sets.

2.NBT.A.3 - 73534
2.NBT.A.3 - 73570
2.NBT.A.3 - 73655
2.NBT.A.3 - 73656

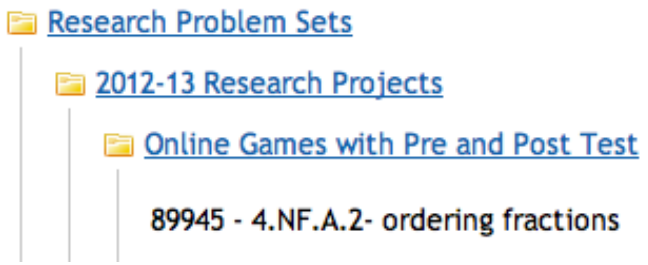
3.NBT.A.1 - 71005

4.NF.A.2 - 89945
4.NF.A.2 - 91673
4.NF.A.2 - 91674
4.NBT.A.3 - 74985

5.NF.A.1 - 76115
5.NBT.A.3a - 73726
5.NBT.A.3a - 74693
5.NBT.A.3a - 75725
5.NBT.A.3a - 75727
5.NBT.A.3a - 75726
5.NBT.A.3a - 75729
5.NBT.A.4 - 81944

6.NS.B.4 - 71555

Problem sets can also be found in ASSISTments Certified Problem Sets under Research Problem Sets.



For more information, click here

Your Next Steps

ASSISTments™

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Your Next Steps

1. View the problem sets, sorted by CCSS. Find them here.

2. Assign one, some, or all of the problem sets to your students to do at home or in school.

3. Once the students have finished, the data will be available in an item report, for your convenience.

Go to 2.NBT.A.3

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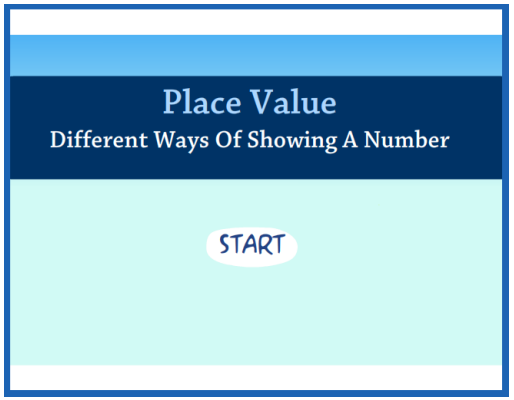
2.NBT.A.3 - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #73534

Click the images to play the two games

Type the digits of the number in the box and click the **Sign It!** button.



Follow up skill builder: 73021

Return to Index

Go to 2.NBT.A.3

ASSISTments™
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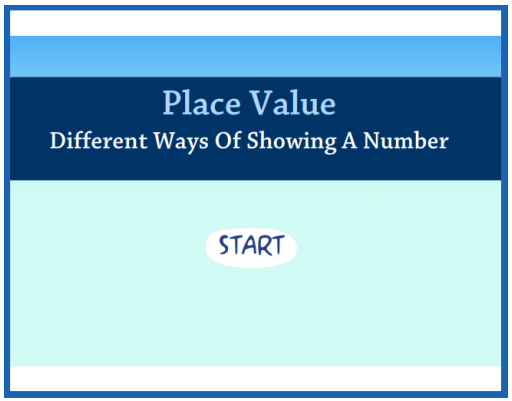
2.NBT.A.3 - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #73570

Click the images to play the two games



Spell out the number in the box and click the **Sign It!** button.

Follow up skill builder: 73028

Return to Index

Go to 2.NBT.A.3

ASSISTments™
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2.NBT.A.3 - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #73655

Click the images to play the two games

Football Math - Place Value Game

Follow up skill builder: 73021

Return to Index

Go to 2.NBT.A.3

ASSISTments™
A Free Public Service of Worcester Polytechnic Institute

2.NBT.A.3 - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #73656

Click the images to play the two games

Football Math - Place Value Game

Follow up skill builder: 73028

Return to Index

Go to 3.NBT.A.1

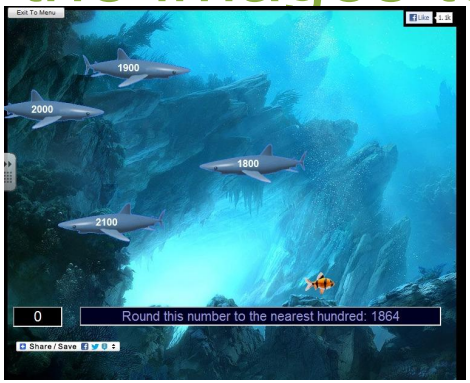
ASSISTments™

A Free Public Service of Worcester Polytechnic Institute

3.NBT.A.1 - Use place value understanding to round whole numbers to the nearest 10 or 100.

Click to see the problem set you will assign: #71005

Click the images to play the two games



Return to Index

Follow Up Skill Builder: 87316

Go to 4.NF.A.2

ASSISTments™
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4.NF.A.2- Compare two fractions with different numerators and different denominators

Click to see the problem set you will assign:

#89945

Click the images to play the two games

Follow up skill builder: 89964

Return to Index

Go to 4.NF.A.2

ASSISTments™

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4.NF.A.2- Compare two fractions with different numerators and different denominators

Click to see the problem set you will assign:

#91673

Click the images to play the two games

Follow up skill builder: 89964

Return to Index

Go to 4.NF.A.2

ASSISTments™

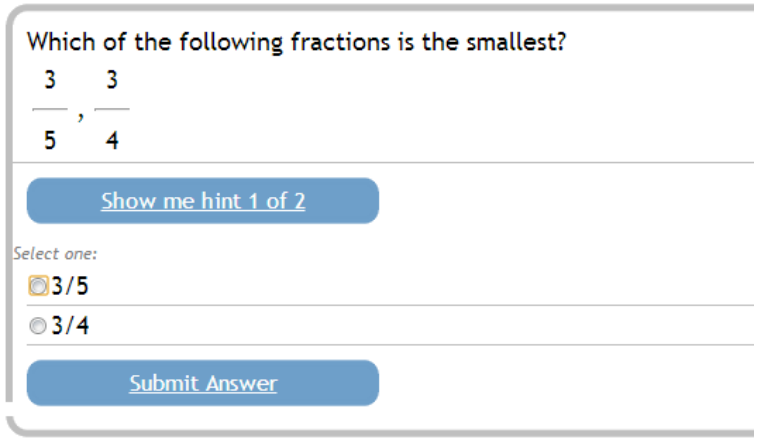
A Free Public Service of Worcester Polytechnic Institute

4.NF.A.2- Compare two fractions with different numerators and different denominators

Click to see the problem set you will assign:

#91674

Click the images to play the two games



Follow up skill builder: 89964

Return to Index

Go to 4.NBT.A.3

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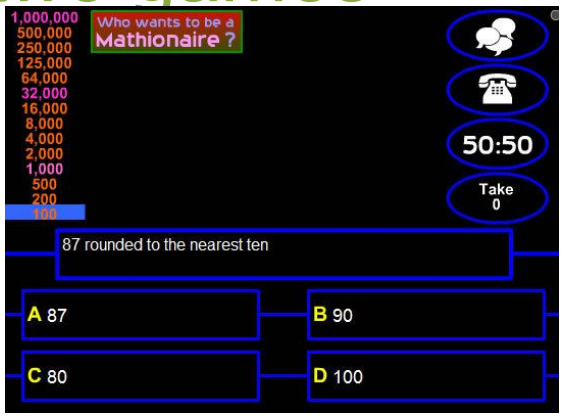
4.NBT.A.3 - Use place value understanding to round multi-digit whole numbers to any place.

Click to see the problem set you will assign: #74985

Click the images to play the two games



Return to Index

Follow Up Skill Builder: 87321

Go to 5.NF.A.1

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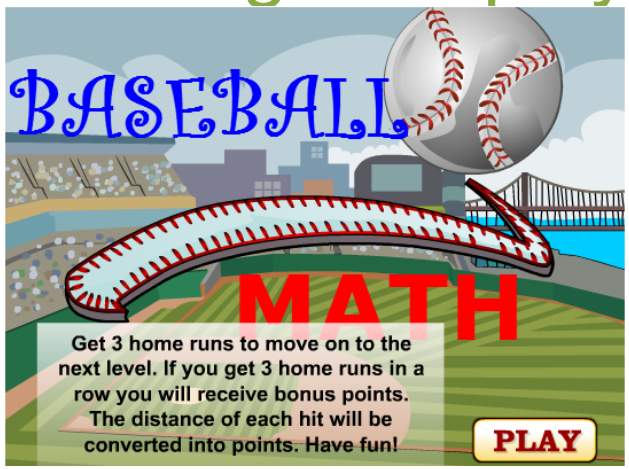
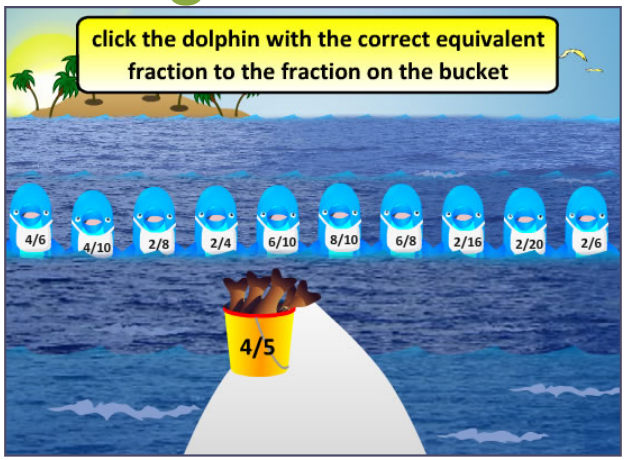
5.NF.A.1- Understand equivalent fractions

Click to see the problem set you will assign:

#76115

Click the images to play the two games





Follow up skill builder: 89915

Return to Index

Go to 5.NBT.A3a

ASSISTments™

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5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #73726

Click the images to play the two games

Follow up skill builder: 73681

Return to Index

Go to 5.NBT.A3a

ASSISTments™
A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #74693

Click the images to play the two games

Follow up skill builder: 74674

Return to Index

Go to 5.NBT.A3a

ASSISTments™

A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #75725

Click the images to play the two games

Follow up skill builder: 73681

Return to Index

Go to 5.NBT.A3a

ASSISTments™
A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #75727

Click the images to play the two games

Follow up skill builder: 74674

Return to Index

Go to 5.NBT.A3a

ASSISTments™

A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #75726

Click the images to play the two games

Follow up skill builder: 73681

Return to Index

Go to 5.NBT.A3a

ASSISTments™

A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.3a - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.

Click to see the problem set you will assign: #75729

Click the images to play the two games

Follow up skill builder: 74674

Return to Index

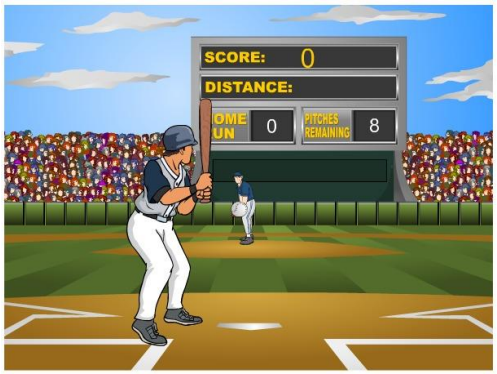
Go to 5.NBT.A.4

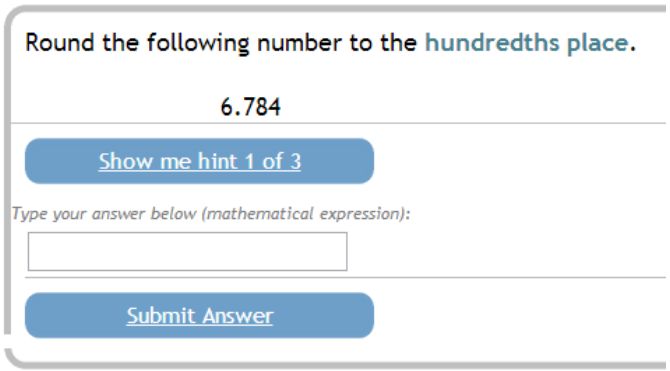
ASSISTments™
A Free Public Service of Worcester Polytechnic Institute

5.NBT.A.4- Use place value understanding to round decimals to any place.

Click to see the problem set you will assign: #81944

Click the images to play the two games





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Follow Up Skill Builder: 87331

Go to 6.NS.B.4

ASSISTments™

A Free Public Service of Worcester Polytechnic Institute

6.NS.B.4- Understand greatest common factor and least common multiple and apply to distributive property

Click to see the problem set you will assign:

#71555

Click the images to play the two games

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Go to More Information

ASSISTments™

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Through this study we hope to prove that playing educational games has an effect on learning. We hope to see improvement from pre to post due to the practice with the game.

We also hope to prove that different types of games have different effects on learning. Each of our studies compares two games, chosen because they are similar in many respects, but different in one or two key areas. By limiting the variables, it is easier to determine what aspects of the games best help the students to learn.

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Appendix E

Study Results

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	350241/568932
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98753	22684	donass@worc.k12.ma.us	25033	1
98966	22684	donass@worc.k12.ma.us	25033	1
162299	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1

163894	22684	donass@worc.k12.ma.us	25033	1
98741	22684	donass@worc.k12.ma.us	25033	1
104444	22684	donass@worc.k12.ma.us	25033	1
98750	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	1
162844	22684	donass@worc.k12.ma.us	25033	1
167311	22684	donass@worc.k12.ma.us	25033	1

350274/568980	350242/568933	350317/569023	Pre Sum	350235/568926	350235/594137	350235/594138	360295/594146	360295/594148	360295/583723
1	1	1	4	1	1				
1	1	1	4	1					
0	1	0	2	1	1				
1	1	1	4	1					
0	0	1	1		1				
			0						
			1						
1	0	1	3				0		1
0	1	0	2				1		1
1	1	0	3						
1	1	1	4				1		1
1	1	1	4		1				
0	1	0	2				1		1
1	1	1	4				1		1
1	1	1	4				1		1
0	0	1	1						
1	1	1	4				1		1
0	0	0	1						
0	1	0	2						
1	1	1	4				1		1
		1	2						
1	1	1	4		1				
0	1		2						
1	0	1	3				1		1
0	0	1	2				1		1
0	1	0	2				1		1
1	1	1	3	1	1				
1	1	1	4	1	1				
0	0	0	0	1	1				
1	1	1	4	1	1				
1	1	1	4	1	1				
1	1	0	3	1	0				
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1	1	1	4	1	1				
0	1	1	3	1	1				
1	1	1	4	1	1				
0	0	1	1	1	1				
1	1	1	4	1	1				
1	0	1	3	1	1				
1	0	0	2	1	1				

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1	1	1	4	1	0			
0	1	1	3	1	1			
1	1	1	4	1	1			
0	1	1	3	1	1			
1	1	0	3	1	1			
1	1	1	4	1				
0	1	0	1	1				
0	0	0	0	1				
1	0	0	2	1				
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1	0	1	3				1	1
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1	1	1	4				1	1
1	1	1	3				1	1
0	1	0	2				1	1
1	1	1	4					
1	1	1	4		1			
0	1	1	3					
1	0	1	2					
1	1	1	4					
1	1	1	3	1	1			
0	1	0	2	1	1			
0	1	1	3	1	1			
1	1	1	4	1	1			
1	1	1	4	1	1			
0	1	0	2	1	1			
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0	1	0	1	1	1			
0	1	0	2	1	1			
1	1	1	4	1	1			
1	1	1	4	1	1			
0	0	0	0	1	1			

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1	1	1	4	1	1
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1	0	1	3	1	1
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1	0	1	3	1	1
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1	1	1	4	1	1
0	1	1	3	1	1
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1	1		3	1	1
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0	1	1	2	1	1

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0	1	1	3	1	1		
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0	0	0	0	1	1		
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0	0	0	0	1	1		
0	1	0	2	1	1		
1	1	0	3	1	1		
0	1	0	2	1	0		
0	1	0	2	1	1		
1	1	1	4			1	1
0	0	0	1			1	1
0	0	0	0			1	1
1	1	1	4			1	1
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1	1	1	4			1	1
1	1	1	4			1	1
0	1	1	2			1	1
1	1	1	4			1	1
1	0	1	3			1	1

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0	1	0	2	1	1
0	0	1	1	1	1
1	0	1	2	1	1
1	0	1	2	1	1
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1	1	1	4	0	1
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1	1	1	4	1	1
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1	1		3	1	1
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1	1	1	4	1	1
1	0	1	3	1	1
0	1	1	3	1	1
1	1	1	4	1	1

1	1	1	4	1	1
1	1	1	4	1	1
0	0	0	1	1	1
0	1	1	3	1	1
0	1	0	2	1	1
1	1	1	4	1	1
1	1	1	4	1	1

Technical Difficulties	350243/568934	350278/568984	350244/568935	350307/569013	Post Sum	Difference	
1	1	1			2	-2	Aced Pre
	0	0			0	-4	Aced Pre
	1	0			1	-1	Can Improve
					0	-4	Aced Pre
					0	-1	Can Improve
					0	0	Can Improve
					0	-1	Can Improve
					0	-3	Can Improve
					0	-2	Can Improve
					0	-3	Can Improve
					0	-4	Aced Pre
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-4	Aced Pre
					0	-4	Aced Pre
					0	-1	Can Improve
					0	-4	Aced Pre
					0	-1	Can Improve
					0	-2	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-3	Can Improve
					0	-2	Can Improve
					0	-2	Can Improve
1	1	1	0	1	3	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	0	0	0	0	0	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	0	1	3	-1	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	1	1	0	1	3	0	Can Improve
1	1	0	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	0	1	3	-1	Aced Pre
1	1	0	1	0	2	-1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	3	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	0	0	0	1	1	-1	Can Improve

1	0	0	0	0	0	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	0	0	2	-1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	1	0	1	1	3	0	Can Improve
1	0	0	1	1	2	-2	Aced Pre
1	0	1	1	1	3	2	Can Improve
1	0	0	0	0	0	0	Can Improve
1	1	1	0	1	3	1	Can Improve
1	1	1	1	1	4	1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	0	0	0	0	0	0	Can Improve
1	1	1	1	0	3	-1	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	1	0	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	2	Can Improve
1	1	0	1	0	2	0	Can Improve
1	0	0	0	0	0	0	Can Improve
1	1	0	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	1	0	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1					0	-4	Aced Pre
1					0	-3	Can Improve
1	0	1	0	1	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	0	1	0	0	1	-1	Can Improve
	0	1	1	1	3	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	1	1	-1	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	2	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	0	1	0	1	2	1	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	0	0	0	1	0	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve

	0	1	1	1	3	1 Can Improve
	1	0	1	0	2	-1 Can Improve
	0	1	1	0	2	-2 Aced Pre
	0	0	1	0	1	-1 Can Improve
	1	1	0	1	3	-1 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	2 Can Improve
	1	1	0	0	2	-1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	0	1	1	1	3	0 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	1 Can Improve
	0	1	0	1	2	-2 Aced Pre
	1	1	1	1	4	2 Can Improve
	1	1	1	1	4	0 Aced Pre
	0	0	0	0	0	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	2 Can Improve
	1	0	1	0	2	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	0	1	3	3 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	0	0	1	2	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	1 Can Improve
	1	0	0	0	1	-1 Can Improve
	1	0	0	0	1	-1 Can Improve
	0	1	0	1	2	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	0	1	0	2	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	0	1	1	3	0 Can Improve
	0	0	0	0	0	-2 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	0	3	1 Can Improve
	1	1	1	0	3	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	0	3	1 Can Improve

	1	0	0	0	1	-2	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	-3	Can Improve
	1	1	1	1	4	2	Can Improve
	1	0	1	0	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	2	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	1	0	1	0	2	0	Can Improve
	0	1	0	0	1	1	Can Improve
	1	0	1	0	2	0	Can Improve
	0	1	0	1	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	-2	Can Improve
	0	0	0	0	0	-2	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	-1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	1	Can Improve
	1	0	1	0	2	-1	Can Improve
	1	0	1	1	3	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	0	2	0	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	4	Can Improve
	0	0	1	1	2	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	0	2	1	Can Improve
	0	0	0	1	1	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	1	1	0	2	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	1	0	1	2	-1	Can Improve

	0	0	0	0	0	0 Can Improve
	1	0	1	0	2	1 Can Improve
	0	0	1	0	1	-1 Can Improve
	1	0	0	0	1	0 Can Improve
	0	1	0	1	2	0 Can Improve
	1	1	0	1	3	1 Can Improve
	1	0	1	0	2	0 Can Improve
	1	0	1	0	2	0 Can Improve
	1	1	1	0	3	0 Can Improve
	0	0	0	0	0	0 Can Improve
	1	1	1	0	3	0 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	0	0	0	0	0	-3 Can Improve
	1	0	1	0	2	2 Can Improve
	1	0	0	0	1	-1 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	0	1	0	2	0 Can Improve
	1	0	0	0	1	-1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	0	0	0	0	0	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	0	3	-1 Aced Pre
	1	1	1	0	3	1 Can Improve
	1	0	0	0	1	0 Can Improve
	1	1	1	1	4	1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	0	1	0	1	2	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	0	3	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	0	1	1	3	-1 Aced Pre
	1	1	1	1	4	0 Aced Pre
	1	0	1	1	3	0 Can Improve
	1	1	1	1	4	0 Aced Pre
	0	0	0	0	0	-2 Can Improve
	0	0	0	0	0	0 Can Improve
	0	0	0	0	0	-1 Can Improve
	1	1	1	1	4	0 Aced Pre
	1	1	1	1	4	1 Can Improve
	0	1	1	0	2	-1 Can Improve
	1	1	1	1	4	0 Aced Pre

	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	1	1	0	Can Improve
	1	0	0	0	1	-2	Can Improve
	1	0	1	1	3	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre

Average Gain A (Rounding Sharks)	0.12
Average Gain B (Rounding Spaceships)	0.024
T Test	0.259

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	361168/584853
71555	159039	157611	kimkelly915@gmail.com	22799	1	1
	164807	22684	donass@worc.k12.ma.us	25033	1	0
	101316	22684	donass@worc.k12.ma.us	25033	1	0
	98714	22684	donass@worc.k12.ma.us	25033	1	0
	159583	157611	kimkelly915@gmail.com	22799	1	1
	70460	22684	donass@worc.k12.ma.us	25033	1	0
	101333	22684	donass@worc.k12.ma.us	25033	1	1
	102792	22684	donass@worc.k12.ma.us	25033	1	0
	163669	22684	donass@worc.k12.ma.us	25033	1	0
	159833	157611	kimkelly915@gmail.com	22799	1	0
	172104	155450	jmacdonald@abschools.org	22025	1	0
	170237	22684	donass@worc.k12.ma.us	25033	1	0
	163691	22684	donass@worc.k12.ma.us	25033	1	1
	102020	22684	donass@worc.k12.ma.us	25033	1	0
	100742	22684	donass@worc.k12.ma.us	25033	1	0
	124931	22684	donass@worc.k12.ma.us	25033	1	0
	70463	22684	donass@worc.k12.ma.us	25033	1	0
	161182	157611	kimkelly915@gmail.com	22799	1	
	184332	22684	donass@worc.k12.ma.us	25033	1	
	164812	22684	donass@worc.k12.ma.us	25033	1	0
	170261	22684	donass@worc.k12.ma.us	25033	1	0
	101569	22684	donass@worc.k12.ma.us	25033	1	
	100190	22684	donass@worc.k12.ma.us	25033	1	
	156515	156514	aruel@rsu23.org	22284	1	
	97333	22684	donass@worc.k12.ma.us	25033	1	
	175804	155450	jmacdonald@abschools.org	22025	1	0
	161172	157611	kimkelly915@gmail.com	22799	1	0
	104290	22684	donass@worc.k12.ma.us	25033	1	
	162995	22684	donass@worc.k12.ma.us	25033	1	
	100201	22684	donass@worc.k12.ma.us	25033	1	0
	162343	22684	donass@worc.k12.ma.us	25033	1	
	166578	22684	donass@worc.k12.ma.us	25033	1	1
	166348	22684	donass@worc.k12.ma.us	25033	1	
	163003	22684	donass@worc.k12.ma.us	25033	1	
	162845	22684	donass@worc.k12.ma.us	25033	1	
	170255	22684	donass@worc.k12.ma.us	25033	1	
	159831	157611	kimkelly915@gmail.com	22799	1	
	98748	22684	donass@worc.k12.ma.us	25033	1	1
	98742	22684	donass@worc.k12.ma.us	25033	1	
	167325	22684	donass@worc.k12.ma.us	25033	1	
	172106	155450	jmacdonald@abschools.org	22025	1	1
	163690	22684	donass@worc.k12.ma.us	25033	1	1
	104278	22684	donass@worc.k12.ma.us	25033	1	

162988	22684	donass@worc.k12.ma.us	25033	1	
165137	22684	donass@worc.k12.ma.us	25033	1	0
98965	22684	donass@worc.k12.ma.us	25033	1	
98690	22684	donass@worc.k12.ma.us	25033	1	
185472	155450	jmacdonald@abschools.org	22025	1	0
172105	155450	jmacdonald@abschools.org	22025	1	0
100192	22684	donass@worc.k12.ma.us	25033	1	
161490	157611	kimkelly915@gmail.com	22799	1	0
161193	157611	kimkelly915@gmail.com	22799	1	
161559	157611	kimkelly915@gmail.com	22799	1	0
152831	152332	teacher@wpi.edu	21727	1	0
160622	157611	kimkelly915@gmail.com	22799	1	0
163308	22684	donass@worc.k12.ma.us	25033	1	
124271	22684	donass@worc.k12.ma.us	25033	1	0
173185	155450	jmacdonald@abschools.org	22025	1	1
161158	157611	kimkelly915@gmail.com	22799	1	
163005	22684	donass@worc.k12.ma.us	25033	1	
166099	22684	donass@worc.k12.ma.us	25033	1	
104436	22684	donass@worc.k12.ma.us	25033	1	
165151	22684	donass@worc.k12.ma.us	25033	1	0
170238	22684	donass@worc.k12.ma.us	25033	1	
166102	22684	donass@worc.k12.ma.us	25033	1	
70461	22684	donass@worc.k12.ma.us	25033		0
104368	22684	donass@worc.k12.ma.us	25033		1
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101319	22684	donass@worc.k12.ma.us	25033		0
160624	157611	kimkelly915@gmail.com	22799		0
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119576	22684	donass@worc.k12.ma.us	25033		0
159318	157611	kimkelly915@gmail.com	22799		0
161160	157611	kimkelly915@gmail.com	22799		0
166696	22684	donass@worc.k12.ma.us	25033		1
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163839	22684	donass@worc.k12.ma.us	25033		0
72544	22684	donass@worc.k12.ma.us	25033		0
104875	22684	donass@worc.k12.ma.us	25033		0
152829	152332	teacher@wpi.edu	21727		0
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172095	155450	jmacdonald@abschools.org	22025		0
163685	22684	donass@worc.k12.ma.us	25033		
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152825	152332	teacher@wpi.edu	21727	0
101572	22684	donass@worc.k12.ma.us	25033	0
165132	156514	aruel@rsu23.org	22284	0
98710	22684	donass@worc.k12.ma.us	25033	1
163309	22684	donass@worc.k12.ma.us	25033	0
98751	22684	donass@worc.k12.ma.us	25033	0
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104274	22684	donass@worc.k12.ma.us	25033	0
159576	157611	kimkelly915@gmail.com	22799	0
163020	22684	donass@worc.k12.ma.us	25033	1
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159574	157611	kimkelly915@gmail.com	22799	1
162837	22684	donass@worc.k12.ma.us	25033	1
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166088	22684	donass@worc.k12.ma.us	25033	0
170256	22684	donass@worc.k12.ma.us	25033	0
50312	22684	donass@worc.k12.ma.us	25033	0
117142	22684	donass@worc.k12.ma.us	25033	0
161175	157611	kimkelly915@gmail.com	22799	0
70456	22684	donass@worc.k12.ma.us	25033	0
173071	22684	donass@worc.k12.ma.us	25033	0
98756	22684	donass@worc.k12.ma.us	25033	1
166688	22684	donass@worc.k12.ma.us	25033	0
104363	22684	donass@worc.k12.ma.us	25033	1
166059	22684	donass@worc.k12.ma.us	25033	0
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102438	22684	donass@worc.k12.ma.us	25033	1
98713	22684	donass@worc.k12.ma.us	25033	0
173186	155450	jmacdonald@abschools.org	22025	0
163681	22684	donass@worc.k12.ma.us	25033	0
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100618	22684	donass@worc.k12.ma.us	25033	1
172093	155450	jmacdonald@abschools.org	22025	1
98712	22684	donass@worc.k12.ma.us	25033	1
70468	22684	donass@worc.k12.ma.us	25033	0
98692	22684	donass@worc.k12.ma.us	25033	1
98695	22684	donass@worc.k12.ma.us	25033	0
72549	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	0
165130	156514	aruel@rsu23.org	22284	0
102172	22684	donass@worc.k12.ma.us	25033	1
179934	155450	jmacdonald@abschools.org	22025	0
164817	22684	donass@worc.k12.ma.us	25033	1
172108	155450	jmacdonald@abschools.org	22025	0
102176	22684	donass@worc.k12.ma.us	25033	0
162829	22684	donass@worc.k12.ma.us	25033	0

163305	22684	donass@worc.k12.ma.us	25033	0
164793	156514	aruel@rsu23.org	22284	1
104361	22684	donass@worc.k12.ma.us	25033	0
163686	22684	donass@worc.k12.ma.us	25033	0
102025	22684	donass@worc.k12.ma.us	25033	1
162840	22684	donass@worc.k12.ma.us	25033	1
98962	22684	donass@worc.k12.ma.us	25033	0
98755	22684	donass@worc.k12.ma.us	25033	0
98733	22684	donass@worc.k12.ma.us	25033	0
98964	22684	donass@worc.k12.ma.us	25033	0
100739	22684	donass@worc.k12.ma.us	25033	0
97327	22684	donass@worc.k12.ma.us	25033	0
163688	22684	donass@worc.k12.ma.us	25033	0
163746	22684	donass@worc.k12.ma.us	25033	0
101570	22684	donass@worc.k12.ma.us	25033	0
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98726	22684	donass@worc.k12.ma.us	25033	0
115904	22684	donass@worc.k12.ma.us	25033	0
163311	22684	donass@worc.k12.ma.us	25033	0
163242	22684	donass@worc.k12.ma.us	25033	1
98968	22684	donass@worc.k12.ma.us	25033	1
163906	22684	donass@worc.k12.ma.us	25033	1
72543	22684	donass@worc.k12.ma.us	25033	0
104280	22684	donass@worc.k12.ma.us	25033	0
173180	155450	jmacdonald@abschools.org	22025	0
173181	155450	jmacdonald@abschools.org	22025	0
162835	22684	donass@worc.k12.ma.us	25033	0
159575	157611	kimkelly915@gmail.com	22799	0
172094	155450	jmacdonald@abschools.org	22025	0
163895	22684	donass@worc.k12.ma.us	25033	0
163239	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	0
102761	22684	donass@worc.k12.ma.us	25033	0
165135	156514	aruel@rsu23.org	22284	0
165131	156514	aruel@rsu23.org	22284	1
159591	157611	kimkelly915@gmail.com	22799	0
166735	22684	donass@worc.k12.ma.us	25033	0
167314	22684	donass@worc.k12.ma.us	25033	0
72547	22684	donass@worc.k12.ma.us	25033	0
72541	22684	donass@worc.k12.ma.us	25033	0
100195	22684	donass@worc.k12.ma.us	25033	0
100771	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
98708	22684	donass@worc.k12.ma.us	25033	0
161157	157611	kimkelly915@gmail.com	22799	1
101564	22684	donass@worc.k12.ma.us	25033	0
98982	22684	donass@worc.k12.ma.us	25033	1

101322	22684	donass@worc.k12.ma.us	25033	0
159333	157611	kimkelly915@gmail.com	22799	0
163898	22684	donass@worc.k12.ma.us	25033	0
104432	22684	donass@worc.k12.ma.us	25033	1
134357	22684	donass@worc.k12.ma.us	25033	1
161560	157611	kimkelly915@gmail.com	22799	0
70458	22684	donass@worc.k12.ma.us	25033	0
164468	156514	aruel@rsu23.org	22284	0
163226	22684	donass@worc.k12.ma.us	25033	1
113806	22684	donass@worc.k12.ma.us	25033	0
161162	157611	kimkelly915@gmail.com	22799	1
104275	22684	donass@worc.k12.ma.us	25033	0
102182	22684	donass@worc.k12.ma.us	25033	1
165138	22684	donass@worc.k12.ma.us	25033	1
159580	157611	kimkelly915@gmail.com	22799	0
70467	22684	donass@worc.k12.ma.us	25033	0
159578	157611	kimkelly915@gmail.com	22799	1
159317	157611	kimkelly915@gmail.com	22799	1
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163002	22684	donass@worc.k12.ma.us	25033	0
159590	157611	kimkelly915@gmail.com	22799	0
181798	22684	donass@worc.k12.ma.us	25033	0
163006	22684	donass@worc.k12.ma.us	25033	0
170243	22684	donass@worc.k12.ma.us	25033	1
163316	22684	donass@worc.k12.ma.us	25033	0
98685	22684	donass@worc.k12.ma.us	25033	0
98735	22684	donass@worc.k12.ma.us	25033	0
98745	22684	donass@worc.k12.ma.us	25033	0
163017	22684	donass@worc.k12.ma.us	25033	1
165144	22684	donass@worc.k12.ma.us	25033	0
101318	22684	donass@worc.k12.ma.us	25033	0
101575	22684	donass@worc.k12.ma.us	25033	0
165257	156514	aruel@rsu23.org	22284	1
102026	22684	donass@worc.k12.ma.us	25033	1
102126	22684	donass@worc.k12.ma.us	25033	1
161174	157611	kimkelly915@gmail.com	22799	0
160307	157611	kimkelly915@gmail.com	22799	1
102131	22684	donass@worc.k12.ma.us	25033	1
98689	22684	donass@worc.k12.ma.us	25033	0
163241	22684	donass@worc.k12.ma.us	25033	0
98997	22684	donass@worc.k12.ma.us	25033	0
163025	22684	donass@worc.k12.ma.us	25033	0
159325	157611	kimkelly915@gmail.com	22799	0
162359	22684	donass@worc.k12.ma.us	25033	0
98696	22684	donass@worc.k12.ma.us	25033	0
170248	22684	donass@worc.k12.ma.us	25033	0
172107	155450	jmacdonald@abschools.org	22025	0

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173187	155450	jmacdonald@abschools.org	22025	0
168303	22684	donass@worc.k12.ma.us	25033	0
101567	22684	donass@worc.k12.ma.us	25033	0
163150	157611	kimkelly915@gmail.com	22799	1
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98996	22684	donass@worc.k12.ma.us	25033	0
104438	22684	donass@worc.k12.ma.us	25033	0
98979	22684	donass@worc.k12.ma.us	25033	1
159577	157611	kimkelly915@gmail.com	22799	0
167324	22684	donass@worc.k12.ma.us	25033	0
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72558	22684	donass@worc.k12.ma.us	25033	0
104287	22684	donass@worc.k12.ma.us	25033	0
160316	157611	kimkelly915@gmail.com	22799	1
166094	22684	donass@worc.k12.ma.us	25033	0
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161498	157611	kimkelly915@gmail.com	22799	0
163318	22684	donass@worc.k12.ma.us	25033	0
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102019	22684	donass@worc.k12.ma.us	25033	0
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0	0	0	0	1	0		
0	0	0	0	1	1		
1	0	0	2	1	0		
0	0	1	1	1	1		
1	0	1	2	1	1		
0	0	0	0	1	1		
1	1	1	3	1	1		
0	0	1	1	1	1		
0	0	0	0	1	1		
0	1	0	2	1	1		
0	1	0	2	1	1		
0	1	0	1	1	1		
1	1	1	4			1	1
1	0	1	2			0	1
0	1	0	2			1	1

0	0	0	0	1	1
0	0	0	0	1	1
0	0	0	0	1	1
1	1	1	4	1	1
1	1	1	4	1	1
1	1	1	3	1	1
1	1	1	3	1	1
0	1	0	1	1	1
1	1	1	4	1	1
0	1	0	1	1	1
1	1	0	3	1	1
0	0	0	0	1	1
1	1	1	4	1	1
1	0	1	3	1	1
1	0	1	2	1	1
1	0	1	2	0	1
1	1	1	4	1	1
0	1	0	2	1	1
0	0	0	0	1	1
1	0	1	2	1	1
1	0	1	2	1	1
0	0	0	0	1	1
1	0	1	2	1	1
0	1	0	2	1	1
1	0	1	2	1	1
0	0	0	0	1	1
0	0	0	0	1	1
0	0	1	1	1	1
0	1	0	2	1	1
1	0	1	2	1	1
1	1	1	3	1	1
0	0	0	0	1	1
1	0	1	3	1	1
1	1	1	4	1	1
0	1	0	2	1	1
1	0	1	2	1	1
1	1	1	4	1	1
0	0	0	1	1	1
1	0	1	2	0	1
1	0	0	1	1	1
1	0	1	2	1	1
1	1	1	3	1	1
1	1	0	2	1	1
0	0	0	0	1	1
1	0	1	2	1	1
1	0	1	2	1	1
1	0	1	2	0	1

1	1	1	4	1	1
0	0	0	0	0	1
1	1	1	3	1	1
1	0	1	2	1	1
0	1	0	2	1	1
0	1	0	2	1	1
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1	0	1	3	1	1
1	1	1	3	1	1
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1	0	1	2	1	1
0	0	0	0	1	1
0	1	0	1	1	1
0	1	0	1	1	1
0	0	1	1	1	1
1	0	0	1	0	1
1	0	0	2	1	1

Technical Dificulties	362382/586179	361170/584855	362385/586182	362370/586167	Post Sum	Difference	
1	1	1	1		3	1	Can Improve
1					0	0	Can Improve
1					0	0	Can Improve
	1	0			1	-1	Can Improve
					0	-3	Can Improve
	0	0	0		0	-1	Can Improve
					0	-3	Can Improve
	0	0	0		0	-1	Can Improve
					0	-2	Can Improve
	0	0			0	-1	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-1	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-1	Can Improve
	0	0			0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
	0	0	1		1	-1	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	-1	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
	1	0			1	-3	Aced Pre
					0	0	Can Improve
					0	0	Can Improve
					0	-3	Can Improve
					0	-4	Aced Pre
					0	0	Can Improve

					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
	1				1	-1	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-2	Can Improve
	1	0	1		2	0	Can Improve
					0	-2	Can Improve
	0				0	-3	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	0	Can Improve
					0	-1	Can Improve
					0	0	Can Improve
					0	0	Can Improve
1	0	0	1	0	1	0	Can Improve
1	0	0	0	0	0	-2	Can Improve
1	0	0	1	0	1	-1	Can Improve
1	0	0	1	0	1	0	Can Improve
1	0	0	1	0	1	-1	Can Improve
1	1	1	0	0	2	1	Can Improve
1	0	0	1	0	1	-1	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	0	1	0	1	0	Can Improve
1	1	0	1	0	2	0	Can Improve
1	1	0	1	0	2	-1	Can Improve
1	1	0	0	0	1	0	Can Improve
1	1	0	1	0	2	1	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	0	1	1	2	2	Can Improve
1	1	0	1	1	3	0	Can Improve
1	0	0	0	0	0	-1	Can Improve
1	1	1	1	1	4	1	Can Improve
1	0	0	0	0	0	-1	Can Improve
1	1	1	1	1	4	1	Can Improve
1	1	0	1	0	2	0	Can Improve
1					0	0	Can Improve
1	1	0	1	0	2	-2	Aced Pre
1	0	1	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre

1	1	1	1	1	4	3	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	1	1	0	3	-1	Aced Pre
	1	1	1	0	3	0	Can Improve
	1	1	1	1	4	3	Can Improve
	1	1	1	0	3	1	Can Improve
	0	0	1	0	1	-1	Can Improve
	0	0	1	0	1	-1	Can Improve
	1	1	1	0	3	-1	Aced Pre
	0	0	0	0	0	-2	Can Improve
	1	1	1	0	3	-1	Aced Pre
	0	1	1	1	3	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	1	0	1	0	2	1	Can Improve
	0	1	0	0	1	0	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	0	0	0	0	-2	Can Improve
	1	0	1	1	3	2	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	1	1	0	3	1	Can Improve
	1	0	0	0	1	-2	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	1	0	0	2	1	Can Improve
	1	0	0	0	1	-1	Can Improve
	1	0	0	0	1	0	Can Improve
	1	0	1	0	2	1	Can Improve
	1	0	0	1	2	0	Can Improve
	1	0	1	1	3	2	Can Improve
	1	1	1	0	3	0	Can Improve
	1	1	1	0	3	-1	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	0	0	1	1	Can Improve
	1	0	1	1	3	0	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	1	1	0	3	-1	Aced Pre
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	-2	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	0	0	0	1	-2	Can Improve
	1	0	0	0	1	0	Can Improve
	0	0	0	1	1	1	Can Improve
	1	0	1	0	2	1	Can Improve

	1	0	1	0	2	0	Can Improve
	1	0	1	1	3	1	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	1	0	1	2	1	Can Improve
	1	0	1	1	3	-1	Aced Pre
	0	0	1	0	1	-1	Can Improve
	1	0	1	1	3	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	1	1	3	1	Can Improve
	0	0	1	0	1	0	Can Improve
	1	0	0	0	1	0	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	1	1	0	2	1	Can Improve
	0	0	1	0	1	0	Can Improve
	1	0	1	0	2	2	Can Improve
	1	0	1	1	3	1	Can Improve
	0	0	0	0	0	0	Can Improve
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	0	0	0	0	0	-1	Can Improve
	1	0	0	0	1	-3	Aced Pre
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	1	0	0	1	2	2	Can Improve
	1	0	0	0	1	0	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	0	3	1	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	-1	Can Improve
	0	0	1	1	2	1	Can Improve
	1	1	1	0	3	0	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	1	1	2	2	Can Improve
	1	1	0	0	2	0	Can Improve
	1	0	1	0	2	1	Can Improve
	1	0	1	0	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	1	0	2	-1	Can Improve
	1	0	0	0	1	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	1	0	2	0	Can Improve
	0	1	0	0	1	-1	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	1	1	0	3	-1	Aced Pre
	1	0	1	0	2	0	Can Improve
	1	0	0	0	1	-1	Can Improve

0	0	0	0	0	0	Can Improve
1	0	0	0	1	1	Can Improve
0	0	0	0	0	0	Can Improve
1	1	1	0	3	-1	Aced Pre
1	1	1	1	4	0	Aced Pre
1	1	1	0	3	0	Can Improve
1	1	1	1	4	1	Can Improve
0	1	0	1	2	1	Can Improve
1	0	1	1	3	-1	Aced Pre
1	0	1	1	3	2	Can Improve
1	1	0	0	2	-1	Can Improve
0	0	0	0	0	0	Can Improve
1	0	1	1	3	-1	Aced Pre
1	0	0	0	1	-2	Can Improve
1	0	1	0	2	0	Can Improve
1	0	1	0	2	0	Can Improve
1	1	1	0	3	-1	Aced Pre
0	1	0	0	1	-1	Can Improve
0	0	1	0	1	1	Can Improve
0	0	1	0	1	-1	Can Improve
0	0	0	0	0	-2	Can Improve
0	0	0	0	0	0	Can Improve
1	0	0	0	1	-1	Can Improve
0	0	1	0	1	-1	Can Improve
0	0	0	0	0	-2	Can Improve
0	0	0	0	0	0	Can Improve
1	0	0	0	1	1	Can Improve
0	0	0	0	0	-1	Can Improve
0	1	0	0	1	-1	Can Improve
1	0	0	1	2	0	Can Improve
1	1	1	1	4	1	Can Improve
1	0	0	0	1	1	Can Improve
0	0	1	0	1	-2	Can Improve
1	1	1	0	3	-1	Aced Pre
0	1	0	0	1	-1	Can Improve
1	0	1	1	3	1	Can Improve
1	1	1	0	3	-1	Aced Pre
0	0	0	0	0	-1	Can Improve
1	0	1	0	2	0	Can Improve
1	0	1	0	2	1	Can Improve
1	0	1	0	2	0	Can Improve
1	1	1	0	3	0	Can Improve
1	1	1	1	4	2	Can Improve
0	0	0	0	0	0	Can Improve
1	0	0	1	2	0	Can Improve
0	0	0	0	0	-2	Can Improve
1	0	1	1	3	1	Can Improve

	1	1	1	0	3	-1	Aced Pre
	0	0	1	0	1	1	Can Improve
	1	1	1	0	3	0	Can Improve
	1	0	1	0	2	0	Can Improve
	1	1	1	0	3	1	Can Improve
	0	0	0	0	0	-2	Can Improve
	1	0	1	0	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	1	0	1	0	Can Improve
	1	1	1	0	3	0	Can Improve
	0	0	1	1	2	0	Can Improve
	0	0	1	0	1	-1	Can Improve
	1	1	1	0	3	-1	Aced Pre
	1	1	1	0	3	1	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	0	1	0	2	-2	Aced Pre
	0	0	0	0	0	-1	Can Improve
	1	1	1	0	3	0	Can Improve
	1	0	1	0	2	-1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	0	0	2	0	Can Improve
	1	0	1	0	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	-1	Can Improve
	1	0	0	0	1	0	Can Improve
	1	0	1	0	2	1	Can Improve
	0	0	1	0	1	0	Can Improve
	1	0	0	1	2	0	Can Improve

Average Gain A (Fruit Shoot)	-0.089
Average Gain B (Who Wants to be a Millionaire)	-0.256
T test	0.147

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	362790/586626
73534	189769	156530	mmowery@rsu23.org	24774	1	1
	184070	22684	donass@worc.k12.ma.us	25033	1	1
	193397	22684	donass@worc.k12.ma.us	25033	1	1
	72545	22684	donass@worc.k12.ma.us	25033	1	1
	189773	156530	mmowery@rsu23.org	24774	1	1
	102180	22684	donass@worc.k12.ma.us	25033	1	0
	189770	156530	mmowery@rsu23.org	24774	1	1
	189767	156530	mmowery@rsu23.org	24774	1	1
	163323	22684	donass@worc.k12.ma.us	25033	1	0
	184332	22684	donass@worc.k12.ma.us	25033	1	1
	189766	156530	mmowery@rsu23.org	24774	1	1
	189768	156530	mmowery@rsu23.org	24774	1	1
	98688	22684	donass@worc.k12.ma.us	25033	1	1
	162995	22684	donass@worc.k12.ma.us	25033	1	1
	187668	22684	donass@worc.k12.ma.us	25033	1	1
	165149	22684	donass@worc.k12.ma.us	25033	1	1
	162252	22684	donass@worc.k12.ma.us	25033	1	1
	163358	22684	donass@worc.k12.ma.us	25033	1	1
	162248	22684	donass@worc.k12.ma.us	25033	1	1
	181798	22684	donass@worc.k12.ma.us	25033	1	1
	181465	22684	donass@worc.k12.ma.us	25033	1	1
	162245	22684	donass@worc.k12.ma.us	25033	1	1
	167125	22684	donass@worc.k12.ma.us	25033	1	1
	113983	22684	donass@worc.k12.ma.us	25033	1	1
	70458	22684	donass@worc.k12.ma.us	25033		1
	166347	22684	donass@worc.k12.ma.us	25033		1
	170358	22684	donass@worc.k12.ma.us	25033		1
	116190	22684	donass@worc.k12.ma.us	25033		1
	166574	22684	donass@worc.k12.ma.us	25033		1
	163239	22684	donass@worc.k12.ma.us	25033		1
	163908	22684	donass@worc.k12.ma.us	25033		1
	191944	22684	donass@worc.k12.ma.us	25033		1
	170252	22684	donass@worc.k12.ma.us	25033		1
	162991	22684	donass@worc.k12.ma.us	25033		1
	130170	22684	donass@worc.k12.ma.us	25033		1
	166351	22684	donass@worc.k12.ma.us	25033		1
	170245	22684	donass@worc.k12.ma.us	25033		1
	166356	22684	donass@worc.k12.ma.us	25033		1
	98996	22684	donass@worc.k12.ma.us	25033		1
	167443	22684	donass@worc.k12.ma.us	25033		1
	164816	22684	donass@worc.k12.ma.us	25033		1
	100188	22684	donass@worc.k12.ma.us	25033		1
	98982	22684	donass@worc.k12.ma.us	25033		1

166107	22684	donass@worc.k12.ma.us	25033	1
163309	22684	donass@worc.k12.ma.us	25033	1
166686	22684	donass@worc.k12.ma.us	25033	1
162848	22684	donass@worc.k12.ma.us	25033	1
162992	22684	donass@worc.k12.ma.us	25033	1
163898	22684	donass@worc.k12.ma.us	25033	1
170249	22684	donass@worc.k12.ma.us	25033	1
170258	22684	donass@worc.k12.ma.us	25033	1
164818	22684	donass@worc.k12.ma.us	25033	1
162832	22684	donass@worc.k12.ma.us	25033	1
162842	22684	donass@worc.k12.ma.us	25033	1
170256	22684	donass@worc.k12.ma.us	25033	1
50312	22684	donass@worc.k12.ma.us	25033	1
163000	22684	donass@worc.k12.ma.us	25033	1
98707	22684	donass@worc.k12.ma.us	25033	1
163102	22684	donass@worc.k12.ma.us	25033	1
163232	22684	donass@worc.k12.ma.us	25033	1
102027	22684	donass@worc.k12.ma.us	25033	1
70454	22684	donass@worc.k12.ma.us	25033	1
167326	22684	donass@worc.k12.ma.us	25033	1
162828	22684	donass@worc.k12.ma.us	25033	1
163307	22684	donass@worc.k12.ma.us	25033	1
173071	22684	donass@worc.k12.ma.us	25033	1
162998	22684	donass@worc.k12.ma.us	25033	1
98756	22684	donass@worc.k12.ma.us	25033	1
167318	22684	donass@worc.k12.ma.us	25033	1
104363	22684	donass@worc.k12.ma.us	25033	1
162989	22684	donass@worc.k12.ma.us	25033	1
163903	22684	donass@worc.k12.ma.us	25033	1
163907	22684	donass@worc.k12.ma.us	25033	1
167320	22684	donass@worc.k12.ma.us	25033	1
162845	22684	donass@worc.k12.ma.us	25033	1
72549	22684	donass@worc.k12.ma.us	25033	1
163002	22684	donass@worc.k12.ma.us	25033	1
163897	22684	donass@worc.k12.ma.us	25033	1
98993	22684	donass@worc.k12.ma.us	25033	1
163899	22684	donass@worc.k12.ma.us	25033	1
166105	22684	donass@worc.k12.ma.us	25033	1
163227	22684	donass@worc.k12.ma.us	25033	1
163006	22684	donass@worc.k12.ma.us	25033	1
166352	22684	donass@worc.k12.ma.us	25033	1
98736	22684	donass@worc.k12.ma.us	25033	1
163316	22684	donass@worc.k12.ma.us	25033	1
162997	22684	donass@worc.k12.ma.us	25033	1
163305	22684	donass@worc.k12.ma.us	25033	1
104437	22684	donass@worc.k12.ma.us	25033	1
176968	22684	donass@worc.k12.ma.us	25033	1

166349	22684	donass@worc.k12.ma.us	25033	1
98685	22684	donass@worc.k12.ma.us	25033	1
98745	22684	donass@worc.k12.ma.us	25033	1
163017	22684	donass@worc.k12.ma.us	25033	1
102025	22684	donass@worc.k12.ma.us	25033	1
163685	22684	donass@worc.k12.ma.us	25033	1
167315	22684	donass@worc.k12.ma.us	25033	1
102026	22684	donass@worc.k12.ma.us	25033	1
164814	22684	donass@worc.k12.ma.us	25033	1
97327	22684	donass@worc.k12.ma.us	25033	1
163238	22684	donass@worc.k12.ma.us	25033	1
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1	1	3	1	1

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0	1	2	1	1
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1	1	3	1	1
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1	1	3	1	1
0	1	2	1	1
1	0	2	1	1
1	1	3	0	1
1	1	2	1	1
1	1	3	1	1
1	1	3	1	1
0	1	2	0	1
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1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
0	1	2	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
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1	1	3	1	1
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1	1	3	1	1
1	1	3	1	1
1	1	3	0	1
0	1	2	1	1
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1	1	3	1	1
1	0	2	1	1
0	0	1	1	1
1	1	3	1	1
1	1	3	1	1
0	1	2	1	1

Technical difficulties	362789/586625	362823/586659	362730/586566	Post Sum	Difference	
1	1	1		2	-1	Aced Pre
1	1	1		2	-1	Aced Pre
1	1	1		2	0	Can Improve
			1	1	-1	Can Improve
	1	0		1	-1	Can Improve
			1	1	0	Can Improve
	1	1		2	-1	Aced Pre
	1	1		2	-1	Aced Pre
			1	1	1	Can Improve
	1	1		2	1	Can Improve
	1	1		2	-1	Aced Pre
	1	1		2	-1	Aced Pre
			1	1	-1	Can Improve
			1	1	-1	Can Improve
	1	1		2	0	Can Improve
			0	0	-2	Can Improve
	1		1	2	0	Can Improve
			1	1	-1	Can Improve
			1	1	-1	Can Improve
	1	1		2	-1	Aced Pre
				0	-1	Can Improve
			1	1	-1	Can Improve
			1	1	-1	Can Improve
			1	1	-1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre

1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
0	1	1	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	0	Can Improve
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	0	1	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	0	2	-1	Aced Pre
1	1	0	2	0	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	0	2	0	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	2	Can Improve

1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	1	Can Improve
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
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1	1	1	3	0	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	1	1	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	3	Can Improve
	0	0	1	1	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	2	Can Improve
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	2	Can Improve
1	1	1	3	3	Can Improve
0	1	0	1	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	0	2	-1	Aced Pre
1	0	1	2	0	Can Improve
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	0	1	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
0	0	1	1	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	0	1	2	-1	Aced Pre
1	1	1	3	0	Aced Pre

1	1	1	3	1	Can Improve
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	1	Can Improve
1	1	1	3	1	Can Improve
1	1	0	2	-1	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	0	Can Improve
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	0	2	-1	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre

1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
0	1	1	2	2	Can Improve
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	2	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	0	1	2	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
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1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	2	Can Improve
1	1	0	2	-1	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	0	Can Improve

Average Gain: Game A (Cookie dough)	-0.024
Average Gain: Game B (place value)	0.151899
t-test	0.009034

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	362862/586698
73570	165004	22684	donass@worc.k12.ma.us	25033	1	1
	170257	22684	donass@worc.k12.ma.us	25033	1	1
	170250	22684	donass@worc.k12.ma.us	25033	1	1
	164125	22684	donass@worc.k12.ma.us	25033	1	1
	163003	22684	donass@worc.k12.ma.us	25033	1	1
	170265	22684	donass@worc.k12.ma.us	25033	1	1
	184332	22684	donass@worc.k12.ma.us	25033	1	1
	162997	22684	donass@worc.k12.ma.us	25033	1	1
	104362	22684	donass@worc.k12.ma.us	25033	1	1
	167342	22684	donass@worc.k12.ma.us	25033	1	1
	166693	22684	donass@worc.k12.ma.us	25033	1	1
	166344	22684	donass@worc.k12.ma.us	25033	1	1
	166574	22684	donass@worc.k12.ma.us	25033	1	1
	163952	22684	donass@worc.k12.ma.us	25033	1	1
	130170	22684	donass@worc.k12.ma.us	25033		1
	104367	22684	donass@worc.k12.ma.us	25033		1
	170252	22684	donass@worc.k12.ma.us	25033		1
	119576	22684	donass@worc.k12.ma.us	25033		1
	163018	22684	donass@worc.k12.ma.us	25033		1
	166352	22684	donass@worc.k12.ma.us	25033		1
	116190	22684	donass@worc.k12.ma.us	25033		1
	163242	22684	donass@worc.k12.ma.us	25033		1
	98968	22684	donass@worc.k12.ma.us	25033		1
	163228	22684	donass@worc.k12.ma.us	25033		1
	162833	22684	donass@worc.k12.ma.us	25033		1
	167311	22684	donass@worc.k12.ma.us	25033		1
	191944	22684	donass@worc.k12.ma.us	25033		1
	166356	22684	donass@worc.k12.ma.us	25033		1
	163310	22684	donass@worc.k12.ma.us	25033		1
	72541	22684	donass@worc.k12.ma.us	25033		1
	70461	22684	donass@worc.k12.ma.us	25033		1
	162991	22684	donass@worc.k12.ma.us	25033		1
	166342	22684	donass@worc.k12.ma.us	25033		1
	162993	22684	donass@worc.k12.ma.us	25033		1
	163683	22684	donass@worc.k12.ma.us	25033		1
	98996	22684	donass@worc.k12.ma.us	25033		1
	166346	22684	donass@worc.k12.ma.us	25033		1
	163098	22684	donass@worc.k12.ma.us	25033		1
	163894	22684	donass@worc.k12.ma.us	25033		1
	163235	22684	donass@worc.k12.ma.us	25033		1
	162843	22684	donass@worc.k12.ma.us	25033		1
	72549	22684	donass@worc.k12.ma.us	25033		1
	166097	22684	donass@worc.k12.ma.us	25033		1

162839	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	1
98965	22684	donass@worc.k12.ma.us	25033	1
162303	22684	donass@worc.k12.ma.us	25033	1
166695	22684	donass@worc.k12.ma.us	25033	1
162847	22684	donass@worc.k12.ma.us	25033	1
166107	22684	donass@worc.k12.ma.us	25033	1
163309	22684	donass@worc.k12.ma.us	25033	1
166686	22684	donass@worc.k12.ma.us	25033	1
162992	22684	donass@worc.k12.ma.us	25033	1
104358	22684	donass@worc.k12.ma.us	25033	1
163898	22684	donass@worc.k12.ma.us	25033	1
97333	22684	donass@worc.k12.ma.us	25033	1
170258	22684	donass@worc.k12.ma.us	25033	1
163905	22684	donass@worc.k12.ma.us	25033	1
164818	22684	donass@worc.k12.ma.us	25033	1
104290	22684	donass@worc.k12.ma.us	25033	1
170256	22684	donass@worc.k12.ma.us	25033	1
50312	22684	donass@worc.k12.ma.us	25033	1
163000	22684	donass@worc.k12.ma.us	25033	1
163102	22684	donass@worc.k12.ma.us	25033	1
163232	22684	donass@worc.k12.ma.us	25033	1
163013	22684	donass@worc.k12.ma.us	25033	1
163307	22684	donass@worc.k12.ma.us	25033	1
173071	22684	donass@worc.k12.ma.us	25033	1
162998	22684	donass@worc.k12.ma.us	25033	1
98701	22684	donass@worc.k12.ma.us	25033	1
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98709	22684	donass@worc.k12.ma.us	25033	1
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166100	22684	donass@worc.k12.ma.us	25033	1

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102023	22684	donass@worc.k12.ma.us	25033	1
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163841	22684	donass@worc.k12.ma.us	25033	1
165151	22684	donass@worc.k12.ma.us	25033	1
163901	22684	donass@worc.k12.ma.us	25033	1

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PV363545/588453	Technical Difficulties	362863/586699	362902/586738	362968/586804	Post Sum	Difference	
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-2	Can Improve
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					0	-3	Aced Pre
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					0	-3	Aced Pre
					0	-3	Aced Pre
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Average Gain: Game A (Cookie dough)	0.041
Average Gain: Game B (Place value)	0.024
t-test	0.362

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	362790/586626
73655	163235	22684	donass@worc.k12.ma.us	25033	1	1
	162998	22684	donass@worc.k12.ma.us	25033	1	1
	167320	22684	donass@worc.k12.ma.us	25033	1	1
	72543	22684	donass@worc.k12.ma.us	25033	1	1
	170259	22684	donass@worc.k12.ma.us	25033	1	1
	98732	22684	donass@worc.k12.ma.us	25033	1	1
	175259	22684	donass@worc.k12.ma.us	25033	1	1
	104358	22684	donass@worc.k12.ma.us	25033	1	1
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	163684	22684	donass@worc.k12.ma.us	25033	1	1
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	102177	22684	donass@worc.k12.ma.us	25033	1	1
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	98988	22684	donass@worc.k12.ma.us	25033	1	1
	163319	22684	donass@worc.k12.ma.us	25033	1	1
	163098	22684	donass@worc.k12.ma.us	25033	1	1
	170252	22684	donass@worc.k12.ma.us	25033		1
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	161906	22684	donass@worc.k12.ma.us	25033		1
	166686	22684	donass@worc.k12.ma.us	25033		1
	162992	22684	donass@worc.k12.ma.us	25033		1
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	163050	22684	donass@worc.k12.ma.us	25033		1
	119576	22684	donass@worc.k12.ma.us	25033		1

166088	22684	donass@worc.k12.ma.us	25033	1
104290	22684	donass@worc.k12.ma.us	25033	1
70458	22684	donass@worc.k12.ma.us	25033	1
50312	22684	donass@worc.k12.ma.us	25033	1
163000	22684	donass@worc.k12.ma.us	25033	1
98707	22684	donass@worc.k12.ma.us	25033	1
163232	22684	donass@worc.k12.ma.us	25033	1
193397	22684	donass@worc.k12.ma.us	25033	1
102027	22684	donass@worc.k12.ma.us	25033	1
163013	22684	donass@worc.k12.ma.us	25033	1
70456	22684	donass@worc.k12.ma.us	25033	1
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98756	22684	donass@worc.k12.ma.us	25033	1
187668	22684	donass@worc.k12.ma.us	25033	1
104363	22684	donass@worc.k12.ma.us	25033	1
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167317	22684	donass@worc.k12.ma.us	25033	1
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167326	22684	donass@worc.k12.ma.us	25033	1
162828	22684	donass@worc.k12.ma.us	25033	1
173071	22684	donass@worc.k12.ma.us	25033	1

98701	22684	donass@worc.k12.ma.us	25033	1
166342	22684	donass@worc.k12.ma.us	25033	1
167318	22684	donass@worc.k12.ma.us	25033	1
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72549	22684	donass@worc.k12.ma.us	25033	1
102029	22684	donass@worc.k12.ma.us	25033	1
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131743	22684	donass@worc.k12.ma.us	25033	1
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162993	22684	donass@worc.k12.ma.us	25033	1
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163682	22684	donass@worc.k12.ma.us	25033	1
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98726	22684	donass@worc.k12.ma.us	25033	1
166353	22684	donass@worc.k12.ma.us	25033	1
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101323	22684	donass@worc.k12.ma.us	25033	1
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163001	22684	donass@worc.k12.ma.us	25033	1
97322	22684	donass@worc.k12.ma.us	25033	1
170248	22684	donass@worc.k12.ma.us	25033	1
163239	22684	donass@worc.k12.ma.us	25033	1
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163896	22684	donass@worc.k12.ma.us	25033	1
104284	22684	donass@worc.k12.ma.us	25033	1
163310	22684	donass@worc.k12.ma.us	25033	1
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102022	22684	donass@worc.k12.ma.us	25033	1
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166346	22684	donass@worc.k12.ma.us	25033	1
167324	22684	donass@worc.k12.ma.us	25033	1
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104443	22684	donass@worc.k12.ma.us	25033	1
100195	22684	donass@worc.k12.ma.us	25033	1
167312	22684	donass@worc.k12.ma.us	25033	1
166706	22684	donass@worc.k12.ma.us	25033	1
98691	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	1
100619	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
98980	22684	donass@worc.k12.ma.us	25033	1
170240	22684	donass@worc.k12.ma.us	25033	1
162833	22684	donass@worc.k12.ma.us	25033	1
98708	22684	donass@worc.k12.ma.us	25033	1
102183	22684	donass@worc.k12.ma.us	25033	0
163233	22684	donass@worc.k12.ma.us	25033	1
98966	22684	donass@worc.k12.ma.us	25033	1
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163005	22684	donass@worc.k12.ma.us	25033	1
98750	22684	donass@worc.k12.ma.us	25033	1

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362854/586690	362732/586568	Pre Sum	363561/594108	363561/594107	363561/587595	363546/587566	363546/594103	363546/594104
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Technical Difficulties	362789/586625	362823/586659	362730/586566	Post Sum	Difference	
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	0	Can Improve
				0	-1	Can Improve
				0	-2	Can Improve
				0	-3	Aced Pre
				0	-1	Can Improve
				0	-1	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
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1	1	1	1	3	1	Can Improve
1	1	1	1	3	1	Can Improve
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1	1	1	1	3	2	Can Improve
1	1	1	1	3	1	Can Improve
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1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
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	1	1	1	3	0	Aced Pre
	0	0	1	1	1	Can Improve
	1	1	0	2	-1	Aced Pre
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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	0	2	2	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	1	Can Improve
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	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
				0	-2	Can Improve
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	0	0	0	0	0	Can Improve
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	1	1	1	3	0	Aced Pre

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	1	1	1	3	1	Can Improve
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Average gain Game A (football math)	0.038
Average gain Game B (scooter quest)	0
t test	0.29

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish
73656	162828	22684	donass@worc.k12.ma.us	25033	1
	165138	22684	donass@worc.k12.ma.us	25033	1
	166087	22684	donass@worc.k12.ma.us	25033	1
	115791	22684	donass@worc.k12.ma.us	25033	1
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	192465	192471	nguagliardi@classroominc.org	24999	
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163908	22684	donass@worc.k12.ma.us	25033
167323	22684	donass@worc.k12.ma.us	25033
104436	22684	donass@worc.k12.ma.us	25033
98732	22684	donass@worc.k12.ma.us	25033

362862/586698	362906/586742	362967/586803	Pre Sum	363561/594107	363561/587595	363561/594108	363546/594103	363546/594104
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1	0	1	2					1
1	0	0	1					1
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363546/587566	Technical Difficulties	362863/586699	362902/586738	362968/586804	Post Sum	Difference	
					0	-3	Aced Pre
					0	-2	Can Improve
			1		1	-2	Aced Pre
					0	-2	Can Improve
					0	-2	Can Improve
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
			1	1	2	-1	Aced Pre
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-1	Can Improve
					0	-3	Aced Pre
					0	-3	Aced Pre
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	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	0	1	1	2	-1	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
1	1	1	1	0	2	-1	Aced Pre
		1	1	1	3	0	Aced Pre

			0	-3	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	1	Can Improve
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	1	3	0	Aced Pre
1	1	0	2	-1	Aced Pre
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1	1	1	3	0	Aced Pre
1	0	1	2	-1	Aced Pre
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1	1	1	3	0	Aced Pre

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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	0	1	2	0	Can Improve
	1	0	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
				0	-3	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
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	1	1	1	3	0	Aced Pre
	0	0	0	0	-3	Aced Pre
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	1	0	1	2	0	Can Improve
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	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
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	1	0	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	0	1	-2	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
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	1	1	1	3	0	Aced Pre

Average gain Game A (football math)	0.0189	
Average gain Game B (Scooter quest)	-0.01	
t test	0.3572	

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	363680/587728
73726	170244	22684	donass@worc.k12.ma.us	25033	1	1
	163902	22684	donass@worc.k12.ma.us	25033	1	1
	162829	22684	donass@worc.k12.ma.us	25033	1	1
	97327	22684	donass@worc.k12.ma.us	25033	1	0
	72558	22684	donass@worc.k12.ma.us	25033	1	1
	119576	22684	donass@worc.k12.ma.us	25033		0
	173071	22684	donass@worc.k12.ma.us	25033		1
	163006	22684	donass@worc.k12.ma.us	25033		1
	163305	22684	donass@worc.k12.ma.us	25033		1
	101319	22684	donass@worc.k12.ma.us	25033		1
	101322	22684	donass@worc.k12.ma.us	25033		1
	163311	22684	donass@worc.k12.ma.us	25033		1
	162359	22684	donass@worc.k12.ma.us	25033		0
	98996	22684	donass@worc.k12.ma.us	25033		1
	72544	22684	donass@worc.k12.ma.us	25033		0
	102022	22684	donass@worc.k12.ma.us	25033		1
	70456	22684	donass@worc.k12.ma.us	25033		1
	167443	22684	donass@worc.k12.ma.us	25033		1
	98710	22684	donass@worc.k12.ma.us	25033		1
	98982	22684	donass@worc.k12.ma.us	25033		1
	163309	22684	donass@worc.k12.ma.us	25033		1
	98751	22684	donass@worc.k12.ma.us	25033		1
	163020	22684	donass@worc.k12.ma.us	25033		1
	104357	22684	donass@worc.k12.ma.us	25033		1
	166088	22684	donass@worc.k12.ma.us	25033		1
	50312	22684	donass@worc.k12.ma.us	25033		1
	167317	22684	donass@worc.k12.ma.us	25033		1
	98756	22684	donass@worc.k12.ma.us	25033		0
	166342	22684	donass@worc.k12.ma.us	25033		1
	98713	22684	donass@worc.k12.ma.us	25033		1
	70467	22684	donass@worc.k12.ma.us	25033		1
	72549	22684	donass@worc.k12.ma.us	25033		1
	166102	22684	donass@worc.k12.ma.us	25033		0
	102172	22684	donass@worc.k12.ma.us	25033		1
	181798	22684	donass@worc.k12.ma.us	25033		1
	163316	22684	donass@worc.k12.ma.us	25033		1
	98962	22684	donass@worc.k12.ma.us	25033		1
	98755	22684	donass@worc.k12.ma.us	25033		1
	104883	22684	donass@worc.k12.ma.us	25033		0
	102026	22684	donass@worc.k12.ma.us	25033		1
	98964	22684	donass@worc.k12.ma.us	25033		1
	100739	22684	donass@worc.k12.ma.us	25033		1
	102126	22684	donass@worc.k12.ma.us	25033		1
	104368	22684	donass@worc.k12.ma.us	25033		0
	98689	22684	donass@worc.k12.ma.us	25033		1

98968	22684	donass@worc.k12.ma.us	25033	1
170246	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
170248	22684	donass@worc.k12.ma.us	25033	1
168303	22684	donass@worc.k12.ma.us	25033	0
104284	22684	donass@worc.k12.ma.us	25033	1
163308	22684	donass@worc.k12.ma.us	25033	1
167314	22684	donass@worc.k12.ma.us	25033	0
97336	22684	donass@worc.k12.ma.us	25033	1
170240	22684	donass@worc.k12.ma.us	25033	1
98708	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	1
101572	22684	donass@worc.k12.ma.us	25033	1
161906	22684	donass@worc.k12.ma.us	25033	0
102021	22684	donass@worc.k12.ma.us	25033	1
170258	22684	donass@worc.k12.ma.us	25033	1
162837	22684	donass@worc.k12.ma.us	25033	1
70458	22684	donass@worc.k12.ma.us	25033	1
170256	22684	donass@worc.k12.ma.us	25033	1
100613	22684	donass@worc.k12.ma.us	25033	1
70454	22684	donass@worc.k12.ma.us	25033	1
166347	22684	donass@worc.k12.ma.us	25033	1
104363	22684	donass@worc.k12.ma.us	25033	1
174699	22684	donass@worc.k12.ma.us	25033	1
98692	22684	donass@worc.k12.ma.us	25033	1
166348	22684	donass@worc.k12.ma.us	25033	1
98695	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	0
163002	22684	donass@worc.k12.ma.us	25033	1
98736	22684	donass@worc.k12.ma.us	25033	1
98685	22684	donass@worc.k12.ma.us	25033	1
163017	22684	donass@worc.k12.ma.us	25033	1
162840	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	1
101570	22684	donass@worc.k12.ma.us	25033	1
98726	22684	donass@worc.k12.ma.us	25033	1
98997	22684	donass@worc.k12.ma.us	25033	1
163906	22684	donass@worc.k12.ma.us	25033	1
163911	22684	donass@worc.k12.ma.us	25033	0
162835	22684	donass@worc.k12.ma.us	25033	1
164810	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	1
102761	22684	donass@worc.k12.ma.us	25033	1
167324	22684	donass@worc.k12.ma.us	25033	1
167319	22684	donass@worc.k12.ma.us	25033	0
72547	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1

98961	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	1
100394	22684	donass@worc.k12.ma.us	25033	1
102183	22684	donass@worc.k12.ma.us	25033	0
98753	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
163894	22684	donass@worc.k12.ma.us	25033	1
98754	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	1

363586/587634	363654/587702	Pre Sum	365349/594115	365349/589831	365349/594116	364378/594111	364378/588584	364378/594109
	0	1	1		1			
		1						
	1	2						1
0	0	0				1		1
1	1	3				1		1
0	0	0	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
0	1	2				1		1
1	1	3				1		1
0	0	0				1		1
1	1	3				1		1
0	0	0				1		1
0	0	1				1		1
1	1	3	0		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	0	2	1		1			
1	1	3	1		1			
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1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	2	1		1			
1	1	3	1		1			
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0	1	2	1		1			
0	0	1	1		1			
0	1	1	1		1			
0	1	2	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
0	0	0	1		1			
1	1	3	1		1			

1	1	3	1	1		
1	1	3	1	1		
1	1	3	1	1		
1	1	3	1	1		
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0	0	0	1	1		
1	1	3	1	1		
1	0	2	1	1		
1	1	3	1	1		
1	1	3	1	1		
1	1	3			1	1
0	0	0			1	1
1	1	3			1	1
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0	0	0			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	0
1	1	3			1	1
0	0	0			1	1
1	1	3			1	1
1	1	3			1	1

1	1	3	1	1
1	1	3	1	1
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0	0	0	1	1
1	1	3	1	1
0	1	2	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1

Technical Dificulty	363681/587729	363579/587627	363655/587703	Post Sum	Difference	
1				0	-1	Can Improve
				0	-1	Can Improve
				0	-2	Can Improve
	0	0		0	0	Can Improve
	1	1		2	-1	Aced Pre
1	0	0	0	0	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	0	0	0	0	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	0	0	0	0	0	Can Improve
1	0	0	0	0	-1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	0	1	0	Can Improve
	0	0	0	0	-1	Can Improve
	1	1	1	3	1	Can Improve
	0	0	0	0	-1	Can Improve
	1	1	1	3	2	Can Improve
	1	1	0	2	0	Can Improve
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	0	0	0	0	-1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	0	1	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	0	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

Average gain A (Soccer math)	-0.049
Average Gain B (football math)	-0.045
ttest	0.489

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	364304/588508
74693	101569	22684	donass@worc.k12.ma.us	25033	1	1
	167317	22684	donass@worc.k12.ma.us	25033	1	1
	170247	22684	donass@worc.k12.ma.us	25033	1	1
	100618	22684	donass@worc.k12.ma.us	25033	1	1
	174699	22684	donass@worc.k12.ma.us	25033	1	1
	170255	22684	donass@worc.k12.ma.us	25033	1	1
	162835	22684	donass@worc.k12.ma.us	25033	1	1
	100620	22684	donass@worc.k12.ma.us	25033	1	1
	72544	22684	donass@worc.k12.ma.us	25033	1	1
	98979	22684	donass@worc.k12.ma.us	25033	1	1
	163305	22684	donass@worc.k12.ma.us	25033		1
	97327	22684	donass@worc.k12.ma.us	25033		0
	102761	22684	donass@worc.k12.ma.us	25033		1
	163005	22684	donass@worc.k12.ma.us	25033		0
	166099	22684	donass@worc.k12.ma.us	25033		1
	101322	22684	donass@worc.k12.ma.us	25033		1
	163898	22684	donass@worc.k12.ma.us	25033		1
	97333	22684	donass@worc.k12.ma.us	25033		1
	119576	22684	donass@worc.k12.ma.us	25033		1
	173071	22684	donass@worc.k12.ma.us	25033		1
	102172	22684	donass@worc.k12.ma.us	25033		1
	98996	22684	donass@worc.k12.ma.us	25033		1
	98710	22684	donass@worc.k12.ma.us	25033		1
	161906	22684	donass@worc.k12.ma.us	25033		1
	163309	22684	donass@worc.k12.ma.us	25033		1
	98751	22684	donass@worc.k12.ma.us	25033		1
	102021	22684	donass@worc.k12.ma.us	25033		1
	163020	22684	donass@worc.k12.ma.us	25033		1
	104357	22684	donass@worc.k12.ma.us	25033		1
	70458	22684	donass@worc.k12.ma.us	25033		1
	50312	22684	donass@worc.k12.ma.us	25033		1
	70454	22684	donass@worc.k12.ma.us	25033		1
	166347	22684	donass@worc.k12.ma.us	25033		1
	166342	22684	donass@worc.k12.ma.us	25033		1
	70467	22684	donass@worc.k12.ma.us	25033		1
	98692	22684	donass@worc.k12.ma.us	25033		1
	166348	22684	donass@worc.k12.ma.us	25033		1
	163669	22684	donass@worc.k12.ma.us	25033		1
	181798	22684	donass@worc.k12.ma.us	25033		1
	163006	22684	donass@worc.k12.ma.us	25033		1
	163316	22684	donass@worc.k12.ma.us	25033		1
	98755	22684	donass@worc.k12.ma.us	25033		0
	104883	22684	donass@worc.k12.ma.us	25033		1

102026	22684	donass@worc.k12.ma.us	25033	1
98964	22684	donass@worc.k12.ma.us	25033	1
100739	22684	donass@worc.k12.ma.us	25033	1
104368	22684	donass@worc.k12.ma.us	25033	0
163746	22684	donass@worc.k12.ma.us	25033	1
98689	22684	donass@worc.k12.ma.us	25033	1
98726	22684	donass@worc.k12.ma.us	25033	0
98997	22684	donass@worc.k12.ma.us	25033	0
98968	22684	donass@worc.k12.ma.us	25033	1
101319	22684	donass@worc.k12.ma.us	25033	1
98696	22684	donass@worc.k12.ma.us	25033	1
170248	22684	donass@worc.k12.ma.us	25033	1
164810	22684	donass@worc.k12.ma.us	25033	1
168303	22684	donass@worc.k12.ma.us	25033	0
104284	22684	donass@worc.k12.ma.us	25033	1
167324	22684	donass@worc.k12.ma.us	25033	1
72558	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1
98961	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
100394	22684	donass@worc.k12.ma.us	25033	1
170240	22684	donass@worc.k12.ma.us	25033	1
98754	22684	donass@worc.k12.ma.us	25033	1
101572	22684	donass@worc.k12.ma.us	25033	0
170258	22684	donass@worc.k12.ma.us	25033	1
162837	22684	donass@worc.k12.ma.us	25033	1
166088	22684	donass@worc.k12.ma.us	25033	1
170256	22684	donass@worc.k12.ma.us	25033	1
100613	22684	donass@worc.k12.ma.us	25033	1
98756	22684	donass@worc.k12.ma.us	25033	0
104363	22684	donass@worc.k12.ma.us	25033	1
98713	22684	donass@worc.k12.ma.us	25033	1
98712	22684	donass@worc.k12.ma.us	25033	1
98695	22684	donass@worc.k12.ma.us	25033	1
72549	22684	donass@worc.k12.ma.us	25033	1
166102	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	1
163002	22684	donass@worc.k12.ma.us	25033	1
98736	22684	donass@worc.k12.ma.us	25033	1
98685	22684	donass@worc.k12.ma.us	25033	1
98745	22684	donass@worc.k12.ma.us	25033	1
163017	22684	donass@worc.k12.ma.us	25033	1
162840	22684	donass@worc.k12.ma.us	25033	1
98962	22684	donass@worc.k12.ma.us	25033	1
102126	22684	donass@worc.k12.ma.us	25033	1
101570	22684	donass@worc.k12.ma.us	25033	1

163311	22684	donass@worc.k12.ma.us	25033	1
170246	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
162359	22684	donass@worc.k12.ma.us	25033	0
163911	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	1
104288	22684	donass@worc.k12.ma.us	25033	1
102022	22684	donass@worc.k12.ma.us	25033	1
167314	22684	donass@worc.k12.ma.us	25033	1
72547	22684	donass@worc.k12.ma.us	25033	1
163917	22684	donass@worc.k12.ma.us	25033	1
98753	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	1

364253/588457	364330/588534	Pre Sum	365349/589831	365349/594116	365349/594115	364378/594111	364378/594109	364378/588584
		1						
1	1	3				1	1	
1	1	3				1	0	
1	1	3			1			
1		2						
1	0	2			1			
1		2						
1	1	3						
1	0	2						
		1						
1	1	3		1	1			
0	0	0		1	1			
1	1	3		1	0			
0	1	1		1	1			
1	1	3		1	1			
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1	1	3				1	1	
1	1	3				1	1	
1	1	3				1	1	
1	0	2				1	1	
1	1	3		1	1			
0	0	1		1	1			
1	1	3		1	1			
1	1	3		1	1			
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1	1	3		1	1			
0	0	1		1	1			
1	0	1		1	1			
1	1	3		1	1			

0	1	2	1	1			
1	1	3	1	1			
1	1	3	1	1			
1	0	1	1	1			
1	1	3	1	1			
1	1	3	1	1			
1	1	2	1	1			
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0	1	2	1	0			
1	1	3	1	1			
1	1	3	1	1			
1	1	3	1	1			
1	1	3	1	1			
1	1	2			1	1	
1	1	3			1	1	
0	1	2			1	0	
1	1	3			1	1	
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1	1	3			1	1	
1	1	3			1	1	
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1	1	3			1	1	
1	1	3			1	1	
1	1	3			1	1	

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1	1	3	1	1
1	1	3	1	1
0	0	0	1	1
1	1	3	1	1
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1	1	3	1	1
1	0	2	1	1
0	0	1	1	1
1	1	3	1	1
0	0	1	1	0
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1

Technical Difficulties	364307/588511	364255/588459	364332/588536	Post Sum	Difference	
				0	-1	Can Improve
				0	-3	Aced Pre
	1	1		2	-1	Aced Pre
				0	-3	Aced Pre
				0	-2	Can Improve
				0	-2	Can Improve
				0	-2	Can Improve
				0	-3	Aced Pre
				0	-2	Can Improve
				0	-1	Can Improve
1	1	1	1	3	0	Aced Pre
1	0	0	0	0	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	2	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	1	2	1	Can Improve
	1	0	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	0	1	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	0	1	0	Can Improve
	0	1	1	2	1	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	0	1	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	1	1	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	0	0	0	0	-1	Can Improve
	1	1	1	3	0	Aced Pre
	0	1	1	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre

Average gain A (soccer math)	0.1556
Average gain B (Football math)	0.0811
T test	0.2446

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	367543/593271
74985	163902	22684	donass@worc.k12.ma.us	25033	1	1
	166686	22684	donass@worc.k12.ma.us	25033	1	1
	162988	22684	donass@worc.k12.ma.us	25033	1	1
	162992	22684	donass@worc.k12.ma.us	25033	1	1
	102021	22684	donass@worc.k12.ma.us	25033	1	1
	162869	22684	donass@worc.k12.ma.us	25033	1	0
	163237	22684	donass@worc.k12.ma.us	25033	1	1
	163305	22684	donass@worc.k12.ma.us	25033	1	1
	100739	22684	donass@worc.k12.ma.us	25033	1	1
	100197	22684	donass@worc.k12.ma.us	25033	1	0
	162299	22684	donass@worc.k12.ma.us	25033	1	0
	98711	22684	donass@worc.k12.ma.us	25033	1	1
	167315	22684	donass@worc.k12.ma.us	25033	1	1
	98969	22684	donass@worc.k12.ma.us	25033	1	0
	100195	22684	donass@worc.k12.ma.us	25033	1	1
	119576	22684	donass@worc.k12.ma.us	25033		0
	98756	22684	donass@worc.k12.ma.us	25033		0
	102029	22684	donass@worc.k12.ma.us	25033		0
	162840	22684	donass@worc.k12.ma.us	25033		0
	166356	22684	donass@worc.k12.ma.us	25033		0
	98990	22684	donass@worc.k12.ma.us	25033		1
	101319	22684	donass@worc.k12.ma.us	25033		1
	100620	22684	donass@worc.k12.ma.us	25033		0
	98996	22684	donass@worc.k12.ma.us	25033		0
	72544	22684	donass@worc.k12.ma.us	25033		0
	102022	22684	donass@worc.k12.ma.us	25033		0
	167311	22684	donass@worc.k12.ma.us	25033		1
	101322	22684	donass@worc.k12.ma.us	25033		0
	170258	22684	donass@worc.k12.ma.us	25033		0
	70461	22684	donass@worc.k12.ma.us	25033		1
	70458	22684	donass@worc.k12.ma.us	25033		1
	170256	22684	donass@worc.k12.ma.us	25033		0
	100613	22684	donass@worc.k12.ma.us	25033		0
	162989	22684	donass@worc.k12.ma.us	25033		1
	163358	22684	donass@worc.k12.ma.us	25033		1
	163669	22684	donass@worc.k12.ma.us	25033		1
	163017	22684	donass@worc.k12.ma.us	25033		1
	98755	22684	donass@worc.k12.ma.us	25033		0
	97327	22684	donass@worc.k12.ma.us	25033		0
	162999	22684	donass@worc.k12.ma.us	25033		0
	100619	22684	donass@worc.k12.ma.us	25033		0
	163311	22684	donass@worc.k12.ma.us	25033		0
	98710	22684	donass@worc.k12.ma.us	25033		0

98751	22684	donass@worc.k12.ma.us	25033	1
50312	22684	donass@worc.k12.ma.us	25033	1
163102	22684	donass@worc.k12.ma.us	25033	1
163232	22684	donass@worc.k12.ma.us	25033	0
70454	22684	donass@worc.k12.ma.us	25033	1
173071	22684	donass@worc.k12.ma.us	25033	1
166348	22684	donass@worc.k12.ma.us	25033	0
166350	22684	donass@worc.k12.ma.us	25033	0
163687	22684	donass@worc.k12.ma.us	25033	1
166102	22684	donass@worc.k12.ma.us	25033	0
131743	22684	donass@worc.k12.ma.us	25033	0
163002	22684	donass@worc.k12.ma.us	25033	1
102172	22684	donass@worc.k12.ma.us	25033	0
162993	22684	donass@worc.k12.ma.us	25033	1
163682	22684	donass@worc.k12.ma.us	25033	0
102123	22684	donass@worc.k12.ma.us	25033	0
98962	22684	donass@worc.k12.ma.us	25033	1
104368	22684	donass@worc.k12.ma.us	25033	1
162838	22684	donass@worc.k12.ma.us	25033	0
98968	22684	donass@worc.k12.ma.us	25033	0
170246	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	0
162359	22684	donass@worc.k12.ma.us	25033	0
104284	22684	donass@worc.k12.ma.us	25033	1
167314	22684	donass@worc.k12.ma.us	25033	0
72547	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	0
102023	22684	donass@worc.k12.ma.us	25033	1
98753	22684	donass@worc.k12.ma.us	25033	1
70463	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	0
161906	22684	donass@worc.k12.ma.us	25033	0
163309	22684	donass@worc.k12.ma.us	25033	1
163020	22684	donass@worc.k12.ma.us	25033	0
163000	22684	donass@worc.k12.ma.us	25033	0
167317	22684	donass@worc.k12.ma.us	25033	1
98695	22684	donass@worc.k12.ma.us	25033	0
163899	22684	donass@worc.k12.ma.us	25033	1
181798	22684	donass@worc.k12.ma.us	25033	0
104279	22684	donass@worc.k12.ma.us	25033	0
163316	22684	donass@worc.k12.ma.us	25033	0
98685	22684	donass@worc.k12.ma.us	25033	1
104883	22684	donass@worc.k12.ma.us	25033	1
102026	22684	donass@worc.k12.ma.us	25033	1
102126	22684	donass@worc.k12.ma.us	25033	1
163312	22684	donass@worc.k12.ma.us	25033	0

102028	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	0
101570	22684	donass@worc.k12.ma.us	25033	0
165146	22684	donass@worc.k12.ma.us	25033	1
98726	22684	donass@worc.k12.ma.us	25033	0
166696	22684	donass@worc.k12.ma.us	25033	1
98997	22684	donass@worc.k12.ma.us	25033	0
170248	22684	donass@worc.k12.ma.us	25033	0
164810	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	0
168303	22684	donass@worc.k12.ma.us	25033	0
164813	22684	donass@worc.k12.ma.us	25033	0
167324	22684	donass@worc.k12.ma.us	25033	0
163909	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	0
98961	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	0
170240	22684	donass@worc.k12.ma.us	25033	0
163894	22684	donass@worc.k12.ma.us	25033	1
98750	22684	donass@worc.k12.ma.us	25033	0
165151	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	0

350241/568932	367560/593289	364725/588952	350317/569023	Pre Sum	364768/597496	364768/588995	364768/591046	360295/594148
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0	0	1	1	3	1	1		
1				2				
1	0	0	1	3				
1	0	1	1	3				
1	0	0	0	2				
1	0	1	1	4				
1				2				
1	0	1	1	3				
1	0	0	1	2				
1	0	0	0	2				
0				1				
0	0	0	1	1				
				1				
0	0	0	0	0	1	1		
0	0	0	1	1	1	1		
1	0	0	0	1	1	1		
1	0	1	1	3	1	1		
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0	0	0	0	0				
0	0	1	1	2				
0	0	1	1	2				
0	0	0	1	1				
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0	0	1	1	2	1	1		

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1	0	0	1	3	1	1
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0	0	0	0	0		
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1	0	1	1	4		
1	0	1	1	3		

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0	0	0	1	1
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1	0	1	1	3
1	0	0	1	3
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0	0	0	1	1
1	0	1	1	4
0	0	0	1	1
1	0	1	1	4
0	0	0	0	0
1	0	1	1	3
1	0	1	1	4
0	0	0	0	0
1	0	1	1	4
0	0	0	0	0

360295/594146	360295/583723	**Technical Difficulties**	364721/588948	350278/568984	350244/568935	367545/593273	367554/593283
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		1					
	1						
	1						
	1	1		0	1		
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	1	1		1	1	1	
	1						
	1						
		1	0	0	0	0	0
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1	1	0	0	0	0	0
1	1	1	1	1	1	0
1	1	0	0	0	0	0

Average gain A (Rounding master)

Average gain B (Rounding Spaceships)

t test

Post Sum	Difference	
3	0	Can Improve
0	-3	Can Improve
0	-3	Can Improve
0	-2	Can Improve
0	-3	Can Improve
0	-3	Can Improve
1	-1	Can Improve
0	-4	Aced Pre
0	-2	Can Improve
3	0	Can Improve
3	1	Can Improve
0	-2	Can Improve
0	-1	Can Improve
0	-1	Can Improve
0	-1	Can Improve
0	0	Can Improve
2	1	Can Improve
1	0	Can Improve
3	0	Can Improve
3	0	Can Improve
4	1	Can Improve
0	-2	Can Improve
3	1	Can Improve
0	0	Can Improve
0	-1	Can Improve
2	-1	Can Improve
4	0	Aced Pre
0	0	Can Improve
3	1	Can Improve
3	-1	Aced Pre
4	0	Aced Pre
1	0	Can Improve
3	1	Can Improve
4	0	Aced Pre
4	1	Can Improve
2	-1	Can Improve
3	-1	Aced Pre
0	0	Can Improve
0	-2	Can Improve
3	1	Can Improve
3	2	Can Improve
2	1	Can Improve
2	0	Can Improve

4	0	Aced Pre
2	-1	Can Improve
3	-1	Aced Pre
0	-2	Can Improve
4	0	Aced Pre
4	0	Aced Pre
4	2	Can Improve
2	1	Can Improve
4	0	Aced Pre
2	1	Can Improve
0	0	Can Improve
4	0	Aced Pre
2	1	Can Improve
4	1	Can Improve
3	2	Can Improve
0	0	Can Improve
4	0	Aced Pre
2	-1	Can Improve
3	0	Can Improve
4	3	Can Improve
4	1	Can Improve
4	2	Can Improve
0	0	Can Improve
3	1	Can Improve
0	0	Can Improve
4	1	Can Improve
2	0	Can Improve
3	-1	Aced Pre
4	0	Aced Pre
4	0	Aced Pre
3	-1	Aced Pre
4	1	Can Improve
0	0	Can Improve
4	1	Can Improve
0	0	Can Improve
4	2	Can Improve
2	-1	Can Improve
0	0	Can Improve
3	-1	Aced Pre
1	1	Can Improve
3	1	Can Improve
1	-2	Can Improve
2	-2	Aced Pre
2	-1	Can Improve
4	0	Aced Pre
4	0	Aced Pre
3	0	Can Improve

4	1	Can Improve
4	1	Can Improve
1	1	Can Improve
4	0	Aced Pre
2	1	Can Improve
4	0	Aced Pre
3	1	Can Improve
4	1	Can Improve
4	1	Can Improve
2	0	Can Improve
3	1	Can Improve
3	0	Can Improve
2	1	Can Improve
4	0	Aced Pre
2	1	Can Improve
4	0	Aced Pre
0	0	Can Improve
3	0	Can Improve
3	-1	Aced Pre
0	0	Can Improve
4	0	Aced Pre
0	0	Can Improve

0.324

0.189

0.278

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	363680/587728
75726	97333	22684	donass@worc.k12.ma.us	25033	1	1
	166696	22684	donass@worc.k12.ma.us	25033	1	1
	163681	22684	donass@worc.k12.ma.us	25033	1	1
	170243	22684	donass@worc.k12.ma.us	25033	1	1
	98745	22684	donass@worc.k12.ma.us	25033	1	0
	163895	22684	donass@worc.k12.ma.us	25033	1	1
	70454	22684	donass@worc.k12.ma.us	25033	1	1
	98733	22684	donass@worc.k12.ma.us	25033	1	1
	101567	22684	donass@worc.k12.ma.us	25033	1	1
	163308	22684	donass@worc.k12.ma.us	25033	1	1
	101322	22684	donass@worc.k12.ma.us	25033		1
	173071	22684	donass@worc.k12.ma.us	25033		1
	163305	22684	donass@worc.k12.ma.us	25033		1
	163017	22684	donass@worc.k12.ma.us	25033		1
	163311	22684	donass@worc.k12.ma.us	25033		1
	101319	22684	donass@worc.k12.ma.us	25033		1
	102761	22684	donass@worc.k12.ma.us	25033		1
	119576	22684	donass@worc.k12.ma.us	25033		0
	117142	22684	donass@worc.k12.ma.us	25033		1
	162840	22684	donass@worc.k12.ma.us	25033		1
	101570	22684	donass@worc.k12.ma.us	25033		1
	170246	22684	donass@worc.k12.ma.us	25033		1
	163839	22684	donass@worc.k12.ma.us	25033		1
	98996	22684	donass@worc.k12.ma.us	25033		1
	166094	22684	donass@worc.k12.ma.us	25033		0
	98710	22684	donass@worc.k12.ma.us	25033		1
	98982	22684	donass@worc.k12.ma.us	25033		1
	98751	22684	donass@worc.k12.ma.us	25033		1
	101569	22684	donass@worc.k12.ma.us	25033		1
	104274	22684	donass@worc.k12.ma.us	25033		1
	163020	22684	donass@worc.k12.ma.us	25033		1
	104432	22684	donass@worc.k12.ma.us	25033		1
	162837	22684	donass@worc.k12.ma.us	25033		1
	104357	22684	donass@worc.k12.ma.us	25033		1
	166088	22684	donass@worc.k12.ma.us	25033		1
	70458	22684	donass@worc.k12.ma.us	25033		1
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	98713	22684	donass@worc.k12.ma.us	25033		1
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	166348	22684	donass@worc.k12.ma.us	25033		1
	98695	22684	donass@worc.k12.ma.us	25033		1
	166102	22684	donass@worc.k12.ma.us	25033		1

163002	22684	donass@worc.k12.ma.us	25033	1
102172	22684	donass@worc.k12.ma.us	25033	1
164817	22684	donass@worc.k12.ma.us	25033	1
163006	22684	donass@worc.k12.ma.us	25033	1
98736	22684	donass@worc.k12.ma.us	25033	0
102176	22684	donass@worc.k12.ma.us	25033	1
163316	22684	donass@worc.k12.ma.us	25033	0
104361	22684	donass@worc.k12.ma.us	25033	1
98962	22684	donass@worc.k12.ma.us	25033	1
100739	22684	donass@worc.k12.ma.us	25033	1
104368	22684	donass@worc.k12.ma.us	25033	0
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98689	22684	donass@worc.k12.ma.us	25033	1
98968	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
162359	22684	donass@worc.k12.ma.us	25033	0
164810	22684	donass@worc.k12.ma.us	25033	1
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167314	22684	donass@worc.k12.ma.us	25033	1
98961	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
100394	22684	donass@worc.k12.ma.us	25033	1
170240	22684	donass@worc.k12.ma.us	25033	1
98753	22684	donass@worc.k12.ma.us	25033	1
98754	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	1
102194	22684	donass@worc.k12.ma.us	25033	1
166099	22684	donass@worc.k12.ma.us	25033	1
101572	22684	donass@worc.k12.ma.us	25033	1
163309	22684	donass@worc.k12.ma.us	25033	1
102021	22684	donass@worc.k12.ma.us	25033	1
170258	22684	donass@worc.k12.ma.us	25033	1
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70456	22684	donass@worc.k12.ma.us	25033	1
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100618	22684	donass@worc.k12.ma.us	25033	1
70467	22684	donass@worc.k12.ma.us	25033	1
98692	22684	donass@worc.k12.ma.us	25033	1
72549	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	0
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98685	22684	donass@worc.k12.ma.us	25033	0
98755	22684	donass@worc.k12.ma.us	25033	0
102026	22684	donass@worc.k12.ma.us	25033	1

98964	22684	donass@worc.k12.ma.us	25033	1
102126	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	1
98726	22684	donass@worc.k12.ma.us	25033	0
98997	22684	donass@worc.k12.ma.us	25033	1
98696	22684	donass@worc.k12.ma.us	25033	1
163911	22684	donass@worc.k12.ma.us	25033	0
162835	22684	donass@worc.k12.ma.us	25033	1
170248	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	1
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98979	22684	donass@worc.k12.ma.us	25033	1
167324	22684	donass@worc.k12.ma.us	25033	1
72558	22684	donass@worc.k12.ma.us	25033	1
72547	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	1

363586/587634	363654/587702	Pre Sum	365349/589831	365349/594115	365349/594116	364379/594112	364379/588585	364379/594113
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	0	1		1				
	1	2		1	1			
	0	0		1				
	0	1		1	1			
1	1	3				1		1
	1	2						1
		1						
		1						
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1	1	3		1	1			
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1	1	3		1	1			
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1	1	3				1		1
1	1	3				1		1
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0	1	2				1		1
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1	1	3		1	1			
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1	0	2		1	1			
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1	1	3		1	1			

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1	1	3			1	1

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1	1	3	1	1

Technical Difficulties	363681/587729	363579/587627	363655/587703	Post Sum	Difference	
1				0	-2	Can Improve
1				0	-3	Aced Pre
				0	-1	Can Improve
				0	-2	Can Improve
				0	0	Can Improve
				0	-1	Can Improve
	1	1		2	-1	Aced Pre
				0	-2	Can Improve
				0	-1	Can Improve
				0	-1	Can Improve
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	2	Can Improve
1	1	1	1	3	1	Can Improve
1	0	0	0	0	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	0	Can Improve
1	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	0	1	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	0	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	0	0	1	-1	Can Improve
	1	1	0	2	0	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	0	0	1	0	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	2	Can Improve
	1	1	1	3	1	Can Improve
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	0	1	0	1	-2	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	-1	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	0	2	2	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	0	1	-2	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	0	1	1	2	2	Can Improve
	1	1	0	2	-1	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	-1	Aced Pre

Average gain A (Soccer Math)	0.125
Average gain B (Scooter Quest)	0
T test	0.1916

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish
75727	166347	22684	donass@worc.k12.ma.us	25033	1
	98734	22684	donass@worc.k12.ma.us	25033	1
	104274	22684	donass@worc.k12.ma.us	25033	1
	164817	22684	donass@worc.k12.ma.us	25033	1
	167315	22684	donass@worc.k12.ma.us	25033	1
	104438	22684	donass@worc.k12.ma.us	25033	1
	100184	22684	donass@worc.k12.ma.us	25033	1
	102194	22684	donass@worc.k12.ma.us	25033	1
	166099	22684	donass@worc.k12.ma.us	25033	1
	101322	22684	donass@worc.k12.ma.us	25033	
	98751	22684	donass@worc.k12.ma.us	25033	
	119576	22684	donass@worc.k12.ma.us	25033	
	163005	22684	donass@worc.k12.ma.us	25033	
	173071	22684	donass@worc.k12.ma.us	25033	
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	98713	22684	donass@worc.k12.ma.us	25033	
	102172	22684	donass@worc.k12.ma.us	25033	
	163305	22684	donass@worc.k12.ma.us	25033	
	101319	22684	donass@worc.k12.ma.us	25033	
	98996	22684	donass@worc.k12.ma.us	25033	
	163917	22684	donass@worc.k12.ma.us	25033	
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	98982	22684	donass@worc.k12.ma.us	25033	
	163309	22684	donass@worc.k12.ma.us	25033	
	97333	22684	donass@worc.k12.ma.us	25033	
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	104357	22684	donass@worc.k12.ma.us	25033	
	166088	22684	donass@worc.k12.ma.us	25033	
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	170256	22684	donass@worc.k12.ma.us	25033	
	50312	22684	donass@worc.k12.ma.us	25033	
	100613	22684	donass@worc.k12.ma.us	25033	
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	70467	22684	donass@worc.k12.ma.us	25033	
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	166102	22684	donass@worc.k12.ma.us	25033	
	163002	22684	donass@worc.k12.ma.us	25033	
	98685	22684	donass@worc.k12.ma.us	25033	
	104361	22684	donass@worc.k12.ma.us	25033	
	104278	22684	donass@worc.k12.ma.us	25033	
	104883	22684	donass@worc.k12.ma.us	25033	
	98733	22684	donass@worc.k12.ma.us	25033	

100739	22684	donass@worc.k12.ma.us	25033
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163746	22684	donass@worc.k12.ma.us	25033
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170246	22684	donass@worc.k12.ma.us	25033
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98979	22684	donass@worc.k12.ma.us	25033
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72547	22684	donass@worc.k12.ma.us	25033
100394	22684	donass@worc.k12.ma.us	25033
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98710	22684	donass@worc.k12.ma.us	25033
161906	22684	donass@worc.k12.ma.us	25033
102021	22684	donass@worc.k12.ma.us	25033
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104432	22684	donass@worc.k12.ma.us	25033
170258	22684	donass@worc.k12.ma.us	25033
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104363	22684	donass@worc.k12.ma.us	25033
100618	22684	donass@worc.k12.ma.us	25033
166348	22684	donass@worc.k12.ma.us	25033
72549	22684	donass@worc.k12.ma.us	25033
131743	22684	donass@worc.k12.ma.us	25033
181798	22684	donass@worc.k12.ma.us	25033
163006	22684	donass@worc.k12.ma.us	25033
163316	22684	donass@worc.k12.ma.us	25033
163017	22684	donass@worc.k12.ma.us	25033
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98962	22684	donass@worc.k12.ma.us	25033
98755	22684	donass@worc.k12.ma.us	25033
102026	22684	donass@worc.k12.ma.us	25033
98964	22684	donass@worc.k12.ma.us	25033
101570	22684	donass@worc.k12.ma.us	25033
98689	22684	donass@worc.k12.ma.us	25033
98726	22684	donass@worc.k12.ma.us	25033
163311	22684	donass@worc.k12.ma.us	25033
98968	22684	donass@worc.k12.ma.us	25033

163025	22684	donass@worc.k12.ma.us	25033
163911	22684	donass@worc.k12.ma.us	25033
170248	22684	donass@worc.k12.ma.us	25033
164810	22684	donass@worc.k12.ma.us	25033
163324	22684	donass@worc.k12.ma.us	25033
104288	22684	donass@worc.k12.ma.us	25033
168303	22684	donass@worc.k12.ma.us	25033
167324	22684	donass@worc.k12.ma.us	25033
72558	22684	donass@worc.k12.ma.us	25033
104287	22684	donass@worc.k12.ma.us	25033
98961	22684	donass@worc.k12.ma.us	25033
163318	22684	donass@worc.k12.ma.us	25033
97336	22684	donass@worc.k12.ma.us	25033
98732	22684	donass@worc.k12.ma.us	25033

364304/588508	364253/588457	364330/588534	Pre Sum	364379/594112	364379/588585	364379/594113	364378/594111	364378/588584
1	1	1	3	1		1		
1	1	1	3	1		1		
1	1	1	3					
1	1	1	3					
1	1	1	3			1		
1	1		2					
1	1	0	2			1		
1	1	1	3			1		
1	1	1	3					
1	0	1	2	1		1		
1	1	1	3	1		1		
1	1	1	3	1		1		
1	1	1	3	1		0		
1	1	1	3				1	
1	1	1	3				1	
1	1	1	3				1	
1	1	0	2				1	
1	1	1	3				1	
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1	0	0	1				1	
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1	1	1	3	1		1		
0	0	1	1	1		1		
1	1	1	3	1		1		
1	1	1	3	1		1		
1	1	1	3	1		1		
1	1	1	3	1		1		

1	1	1	3	1	1	
1	1	1	3	1	1	
0	0	0	0	1	0	
1	1	1	3	1	1	
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1	1	1	3			1
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1	1	0	2			1
1	1	1	3			1
1	1	1	3			1
1	1	1	3			1
1	1	1	3			1
0	1	1	2			1
1	1	1	3			1
1	1	1	3			1
1	0	0	1			1
1	1	1	3			1
1	1	1	3			1
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1	1	1	3			1
1	1	1	3			1
1	1	1	3			1
1	1	1	3			1
1	1	0	2			1
1	1	1	3			1

1	1	1	3	1
1	1	1	3	1
1	1	1	3	1
1	1	1	3	1
1	0	1	2	1
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1	1	1	3	1
1	1	1	3	1
1	1	1	3	1
1	1	1	3	1
1	1	1	3	1
1	1	1	3	1

364378/594109	Technical Difficulties	364307/588511	364255/588459	364332/588536	Post Sum	Difference	
		1			1	-2	Aced Pre
		1	1		2	-1	Aced Pre
1					0	-3	Aced Pre
1					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-2	Can Improve
					0	-3	Aced Pre
1					0	-3	Aced Pre
	1	1	1	1	3	1	Can Improve
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	1	Can Improve
1	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	0	Aced Pre
1	1	1	1	1	3	0	Aced Pre
0	1	0	0	0	0	-1	Can Improve
		1	1	0	2	-1	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	0	2	-1	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		0	0	0	0	-1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	1	1	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	0	1	-1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
0	1	0	1	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	0	0	0	0	-1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	1	Can Improve
1	1	1	1	3	0	Aced Pre
0	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	0	Can Improve
1	1	1	1	3	0	Aced Pre

1	1	1	1	3	0	Aced Pre
1	1	0	1	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	1	Can Improve
0	1	1	1	3	1	Can Improve
1	1	0	0	1	1	Can Improve
1	1	1	1	3	1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
0	1	1	1	3	0	Aced Pre
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre

Average gain A (Scooter Quest)	-0.073
Average gain B (Football Math)	0.0952
T test	0.0557

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	364304/588508
75729	115904	22684	donass@worc.k12.ma.us	25033	1	1
	101575	22684	donass@worc.k12.ma.us	25033	1	1
	113806	22684	donass@worc.k12.ma.us	25033	1	1
	100771	22684	donass@worc.k12.ma.us	25033	1	1
	102761	22684	donass@worc.k12.ma.us	25033		1
	101322	22684	donass@worc.k12.ma.us	25033		1
	170256	22684	donass@worc.k12.ma.us	25033		1
	98713	22684	donass@worc.k12.ma.us	25033		1
	163305	22684	donass@worc.k12.ma.us	25033		1
	97327	22684	donass@worc.k12.ma.us	25033		1
	104368	22684	donass@worc.k12.ma.us	25033		0
	101319	22684	donass@worc.k12.ma.us	25033		1
	170258	22684	donass@worc.k12.ma.us	25033		1
	119576	22684	donass@worc.k12.ma.us	25033		1
	173071	22684	donass@worc.k12.ma.us	25033		1
	98964	22684	donass@worc.k12.ma.us	25033		1
	163906	22684	donass@worc.k12.ma.us	25033		1
	163839	22684	donass@worc.k12.ma.us	25033		1
	166094	22684	donass@worc.k12.ma.us	25033		1
	167443	22684	donass@worc.k12.ma.us	25033		1
	101564	22684	donass@worc.k12.ma.us	25033		1
	98751	22684	donass@worc.k12.ma.us	25033		1
	101569	22684	donass@worc.k12.ma.us	25033		1
	102021	22684	donass@worc.k12.ma.us	25033		1
	104274	22684	donass@worc.k12.ma.us	25033		1
	97333	22684	donass@worc.k12.ma.us	25033		1
	162837	22684	donass@worc.k12.ma.us	25033		1
	104357	22684	donass@worc.k12.ma.us	25033		1
	70458	22684	donass@worc.k12.ma.us	25033		1
	50312	22684	donass@worc.k12.ma.us	25033		1
	117142	22684	donass@worc.k12.ma.us	25033		1
	166342	22684	donass@worc.k12.ma.us	25033		1
	163681	22684	donass@worc.k12.ma.us	25033		1
	102031	22684	donass@worc.k12.ma.us	25033		1
	98692	22684	donass@worc.k12.ma.us	25033		1
	166348	22684	donass@worc.k12.ma.us	25033		1
	98695	22684	donass@worc.k12.ma.us	25033		1
	72549	22684	donass@worc.k12.ma.us	25033		1
	166102	22684	donass@worc.k12.ma.us	25033		1
	163669	22684	donass@worc.k12.ma.us	25033		1
	102172	22684	donass@worc.k12.ma.us	25033		1
	164817	22684	donass@worc.k12.ma.us	25033		1
	163006	22684	donass@worc.k12.ma.us	25033		1

170243	22684	donass@worc.k12.ma.us	25033	1
98736	22684	donass@worc.k12.ma.us	25033	1
102176	22684	donass@worc.k12.ma.us	25033	1
163316	22684	donass@worc.k12.ma.us	25033	0
104361	22684	donass@worc.k12.ma.us	25033	1
163017	22684	donass@worc.k12.ma.us	25033	1
98962	22684	donass@worc.k12.ma.us	25033	1
98755	22684	donass@worc.k12.ma.us	25033	0
102126	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	0
98689	22684	donass@worc.k12.ma.us	25033	1
98997	22684	donass@worc.k12.ma.us	25033	1
170246	22684	donass@worc.k12.ma.us	25033	1
98696	22684	donass@worc.k12.ma.us	25033	1
163911	22684	donass@worc.k12.ma.us	25033	1
170248	22684	donass@worc.k12.ma.us	25033	1
98996	22684	donass@worc.k12.ma.us	25033	1
102022	22684	donass@worc.k12.ma.us	25033	1
104438	22684	donass@worc.k12.ma.us	25033	1
98979	22684	donass@worc.k12.ma.us	25033	1
167324	22684	donass@worc.k12.ma.us	25033	1
167314	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1
98708	22684	donass@worc.k12.ma.us	25033	1
102183	22684	donass@worc.k12.ma.us	25033	1
98753	22684	donass@worc.k12.ma.us	25033	1
98732	22684	donass@worc.k12.ma.us	25033	1
101572	22684	donass@worc.k12.ma.us	25033	1
98710	22684	donass@worc.k12.ma.us	25033	1
98982	22684	donass@worc.k12.ma.us	25033	1
163309	22684	donass@worc.k12.ma.us	25033	1
163020	22684	donass@worc.k12.ma.us	25033	1
104432	22684	donass@worc.k12.ma.us	25033	1
166088	22684	donass@worc.k12.ma.us	25033	1
70456	22684	donass@worc.k12.ma.us	25033	1
98756	22684	donass@worc.k12.ma.us	25033	1
166347	22684	donass@worc.k12.ma.us	25033	1
104363	22684	donass@worc.k12.ma.us	25033	1
100618	22684	donass@worc.k12.ma.us	25033	1
163004	22684	donass@worc.k12.ma.us	25033	1
98712	22684	donass@worc.k12.ma.us	25033	1
70467	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	1
163002	22684	donass@worc.k12.ma.us	25033	1
181798	22684	donass@worc.k12.ma.us	25033	0
98685	22684	donass@worc.k12.ma.us	25033	0
162840	22684	donass@worc.k12.ma.us	25033	1

98733	22684	donass@worc.k12.ma.us	25033	1
102026	22684	donass@worc.k12.ma.us	25033	1
100739	22684	donass@worc.k12.ma.us	25033	1
163688	22684	donass@worc.k12.ma.us	25033	1
163312	22684	donass@worc.k12.ma.us	25033	1
101570	22684	donass@worc.k12.ma.us	25033	0
102131	22684	donass@worc.k12.ma.us	25033	1
98726	22684	donass@worc.k12.ma.us	25033	0
166696	22684	donass@worc.k12.ma.us	25033	1
163311	22684	donass@worc.k12.ma.us	25033	1
98968	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
162359	22684	donass@worc.k12.ma.us	25033	0
163895	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	0
168303	22684	donass@worc.k12.ma.us	25033	0
101567	22684	donass@worc.k12.ma.us	25033	1
72558	22684	donass@worc.k12.ma.us	25033	1
72547	22684	donass@worc.k12.ma.us	25033	1
98961	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
100394	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
98754	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	1
102194	22684	donass@worc.k12.ma.us	25033	1

364253/588457	364330/588534	Pre Sum	365349/594115	365349/589831	365349/594116	364379/588585	364379/594112	364379/594113
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1	1	3						1
0	1	2						1
1	1	3	0		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
0	0	1	1		1			
1	0	1	1		1			
1	1	3	1		1			
1	1	3					1	1
1	1	3					1	1
1	1	3					1	1
1	1	3					1	1
1	1	3					1	1
1	1	3					1	1
0	0	1	0		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
1	1	3	1		1			
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1	1	3			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	0
1	1	3			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	1
1	1	3			1	0
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1	1	3			1	1
1	1	3			1	1
1	1	2			1	1
0	0	0			1	1
1	1	3			1	1

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1	1	2	1	1
1	1	3	1	1
1	1	2	1	1
1	1	3	1	1
1	1	3	1	0
1	1	3	1	1
1	1	3	1	1
0	1	1	1	0
1	1	3	1	1
0	0	0	1	1
1	0	1	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	0
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
1	1	3	1	1
0	0	1	1	1
1	1	3	1	1

Technical Difficulties	364307/588511	364255/588459	364332/588536	Post Sum	Difference	
1	1			1	-2	Aced Pre
				0	-3	Aced Pre
				0	-3	Aced Pre
				0	-2	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	0	0	1	0	Can Improve
1	0	0	0	0	-1	Can Improve
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
	0	1	0	1	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	0	1	-2	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	0	1	2	2	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	0	1	0	1	-1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	0	0	1	1	-2	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	0	1	1	2	-1	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	0	1	0	1	1	Can Improve
	1	1	1	3	0	Aced Pre

	1	1	1	3	0	Aced Pre
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	0	0	1	1	-1	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	0	1	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	1	0	1	2	-1	Aced Pre
	0	0	0	0	0	Can Improve
	1	1	0	2	1	Can Improve
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	1	3	0	Aced Pre
	1	1	0	2	1	Can Improve
	1	1	1	3	0	Aced Pre

Average gain A (Soccer Math)	0.0192
Average gain B (Scooter Quest)	0.0638
t test	0.3498

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	209119/372093
76115	102761	22684	donass@worc.k12.ma.us	25033	1	0
	167311	22684	donass@worc.k12.ma.us	25033	1	1
	166350	22684	donass@worc.k12.ma.us	25033	1	0
	101564	22684	donass@worc.k12.ma.us	25033	1	0
	165133	156514	aruel@rsu23.org	22284	1	0
	72545	22684	donass@worc.k12.ma.us	25033	1	0
	162989	22684	donass@worc.k12.ma.us	25033	1	1
	70467	22684	donass@worc.k12.ma.us	25033	1	
	102029	22684	donass@worc.k12.ma.us	25033	1	1
	102123	22684	donass@worc.k12.ma.us	25033	1	0
	162999	22684	donass@worc.k12.ma.us	25033	1	1
	102028	22684	donass@worc.k12.ma.us	25033	1	0
	98689	22684	donass@worc.k12.ma.us	25033	1	0
	100192	22684	donass@worc.k12.ma.us	25033	1	0
	165141	22684	donass@worc.k12.ma.us	25033	1	
	166735	22684	donass@worc.k12.ma.us	25033	1	1
	164813	22684	donass@worc.k12.ma.us	25033	1	0
	100394	22684	donass@worc.k12.ma.us	25033	1	0
	170240	22684	donass@worc.k12.ma.us	25033	1	0
	98750	22684	donass@worc.k12.ma.us	25033	1	0
	98710	22684	donass@worc.k12.ma.us	25033		1
	101322	22684	donass@worc.k12.ma.us	25033		0
	166088	22684	donass@worc.k12.ma.us	25033		0
	104279	22684	donass@worc.k12.ma.us	25033		1
	163305	22684	donass@worc.k12.ma.us	25033		0
	166356	22684	donass@worc.k12.ma.us	25033		0
	164810	22684	donass@worc.k12.ma.us	25033		1
	72544	22684	donass@worc.k12.ma.us	25033		0
	119576	22684	donass@worc.k12.ma.us	25033		0
	100613	22684	donass@worc.k12.ma.us	25033		0
	98756	22684	donass@worc.k12.ma.us	25033		0
	102172	22684	donass@worc.k12.ma.us	25033		0
	98964	22684	donass@worc.k12.ma.us	25033		0
	170246	22684	donass@worc.k12.ma.us	25033		1
	101319	22684	donass@worc.k12.ma.us	25033		0
	98996	22684	donass@worc.k12.ma.us	25033		0
	165132	156514	aruel@rsu23.org	22284		0
	161906	22684	donass@worc.k12.ma.us	25033		0
	163309	22684	donass@worc.k12.ma.us	25033		1
	98751	22684	donass@worc.k12.ma.us	25033		0
	170258	22684	donass@worc.k12.ma.us	25033		0
	104357	22684	donass@worc.k12.ma.us	25033		0
	164468	156514	aruel@rsu23.org	22284		1

170256	22684	donass@worc.k12.ma.us	25033	0
50312	22684	donass@worc.k12.ma.us	25033	1
163232	22684	donass@worc.k12.ma.us	25033	0
70454	22684	donass@worc.k12.ma.us	25033	0
166688	22684	donass@worc.k12.ma.us	25033	1
166348	22684	donass@worc.k12.ma.us	25033	0
98695	22684	donass@worc.k12.ma.us	25033	0
163899	22684	donass@worc.k12.ma.us	25033	1
181798	22684	donass@worc.k12.ma.us	25033	1
163017	22684	donass@worc.k12.ma.us	25033	0
163686	22684	donass@worc.k12.ma.us	25033	0
98962	22684	donass@worc.k12.ma.us	25033	1
102126	22684	donass@worc.k12.ma.us	25033	1
163312	22684	donass@worc.k12.ma.us	25033	1
101570	22684	donass@worc.k12.ma.us	25033	0
163311	22684	donass@worc.k12.ma.us	25033	0
98997	22684	donass@worc.k12.ma.us	25033	0
98968	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
162359	22684	donass@worc.k12.ma.us	25033	0
167988	22684	donass@worc.k12.ma.us	25033	1
100620	22684	donass@worc.k12.ma.us	25033	1
165135	156514	aruel@rsu23.org	22284	1
163909	22684	donass@worc.k12.ma.us	25033	1
98961	22684	donass@worc.k12.ma.us	25033	1
163318	22684	donass@worc.k12.ma.us	25033	0
98753	22684	donass@worc.k12.ma.us	25033	1
163894	22684	donass@worc.k12.ma.us	25033	1
102021	22684	donass@worc.k12.ma.us	25033	1
163020	22684	donass@worc.k12.ma.us	25033	0
162837	22684	donass@worc.k12.ma.us	25033	1
70458	22684	donass@worc.k12.ma.us	25033	1
163102	22684	donass@worc.k12.ma.us	25033	1
167317	22684	donass@worc.k12.ma.us	25033	1
167326	22684	donass@worc.k12.ma.us	25033	0
173071	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	0
163002	22684	donass@worc.k12.ma.us	25033	1
165130	156514	aruel@rsu23.org	22284	0
163316	22684	donass@worc.k12.ma.us	25033	0
164793	156514	aruel@rsu23.org	22284	1
98685	22684	donass@worc.k12.ma.us	25033	1
165257	156514	aruel@rsu23.org	22284	0
162840	22684	donass@worc.k12.ma.us	25033	1
98755	22684	donass@worc.k12.ma.us	25033	0
104883	22684	donass@worc.k12.ma.us	25033	1
102026	22684	donass@worc.k12.ma.us	25033	1

100739	22684	donass@worc.k12.ma.us	25033	0
97327	22684	donass@worc.k12.ma.us	25033	0
104368	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	0
102131	22684	donass@worc.k12.ma.us	25033	1
98990	22684	donass@worc.k12.ma.us	25033	0
98726	22684	donass@worc.k12.ma.us	25033	1
98965	22684	donass@worc.k12.ma.us	25033	0
166696	22684	donass@worc.k12.ma.us	25033	0
170248	22684	donass@worc.k12.ma.us	25033	1
163324	22684	donass@worc.k12.ma.us	25033	0
168303	22684	donass@worc.k12.ma.us	25033	0
104284	22684	donass@worc.k12.ma.us	25033	1
165131	156514	aruel@rsu23.org	22284	0
167324	22684	donass@worc.k12.ma.us	25033	1
167314	22684	donass@worc.k12.ma.us	25033	0
72547	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1
97336	22684	donass@worc.k12.ma.us	25033	1
102019	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	0
98732	22684	donass@worc.k12.ma.us	25033	0

209080/372054	209115/372089	209078/372052	Pre Sum	366081/593903	366081/590611	366081/597792	366080/597793	366080/593904	366080/590610
0	0		0					0	1
1	1	0	3					1	1
1	0		1		1	1			
1	1		2						
0	0		0					0	1
			0						
	1		2						
			0						
			1						
1	1		2						
1			2						
			0						
1	0		1					1	1
			0						
			0						
1	1	1	4					1	1
0	0		0			1			
1	1		2			1			
			0						
0	0		0						
1	1	0	3		1	0			
0	0	0	0		1	1			
0	1	0	1		1	1			
1	1	0	3		1	1			
0	0	0	0		1	1			
1	0	1	2		1	1			
1	0	0	2		1	1			
0	0	0	0		1	1			
0	0	0	0					1	1
0	0	0	0					1	1
0	0	0	0					1	1
0	0	0	0					1	1
1	0	0	1					1	1
1	1	0	3					1	1
1	0	0	1					1	1
0	0	0	0					1	1
0	1	0	1		1	1			
0	0	0	0		1	1			
0	1	0	2		1	1			
0	1	1	2		1	1			
1	1	1	3		1	1			
0	0	0	0		1	1			
1	1	1	4		1	1			

0	0	0	0	1	1		
1	0	1	3	1	1		
0	0	0	0	1	0		
0	0	0	0	1	1		
1	1	1	4	1	1		
1	1	1	3	1	1		
0	0	0	0	1	1		
1	1	1	4	1	1		
0	1	0	2	1	1		
1	1	1	3	1	1		
0	0	0	0	1	1		
1	1	1	4	1	1		
1	1	1	4	1	1		
1	1	0	3	1	1		
0	0	0	0	1	1		
1	1	1	3	1	1		
1	1	1	3	1	1		
0	1	1	3	1	1		
1	1	1	4	1	1		
0	0	0	0	1	1		
1	1	1	4	1	1		
1	1	1	4	1	1		
1	0	0	2	1	0		
1	1	1	4	1	1		
1	1	1	4	1	1		
0	0	0	0	1	1		
1	1	0	3	1	1		
1	1	1	4	1	1		
1	1	1	4			1	1
0	0	0	0			1	1
1	1	1	4			1	1
1	1	1	4			1	1
1	1	1	4			1	1
1	1	0	3			1	1
0	0	0	0			0	1
1	1	1	4			1	1
0	1	0	1			1	1
1	1	1	4			1	1
0	0	0	0			0	1
0	0	0	0			1	1
0	0	1	2			1	1
0	0	0	1			1	1
0	0	0	0			1	1
1	1	0	3			1	1
0	0	0	0			1	1
1	1	1	4			1	1
1	1	1	4			1	1

0	1	0	1	1	1
0	0	0	0	1	1
1	1	0	3	1	1
1	1	1	3	1	1
1	1	1	4	1	1
0	0	0	0	1	1
0	1	0	2	1	1
0	0	0	0	1	1
1	1	1	3	1	1
1	1	1	4	1	1
0	0	0	0	1	1
0	0	0	0	1	1
1	1	1	4	1	1
0	0	0	0	1	1
0	1	1	3	1	1
0	0	0	0	1	1
1	1	1	4	1	1
1	1	1	4	1	1
0	0	0	1	1	1
1	0	1	3	1	1
1	1	1	3	1	1
1	0	0	1	1	1

Technical Difficulties	209114/372088	209076/372050	209113/372087	209075/372049	Post Sum	Difference	
1					0	0	Can Improve
1	1				1	-2	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
	0				0	0	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	-1	Can Improve
					0	0	Can Improve
					0	0	Can Improve
	1				1	-3	Aced Pre
					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	0	Can Improve
1	0	1	0	1	2	-1	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	0	1	0	1	0	Can Improve
1	0	1	0	0	1	-2	Can Improve
1	0	0	0	0	0	0	Can Improve
1	1	0	1	0	2	0	Can Improve
1	0	0	0	0	0	-2	Can Improve
1	0	1	0	0	1	1	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	1	0	0	1	1	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	0	0	0	0	0	Can Improve
1	0	1	1	0	2	1	Can Improve
1	1	1	1	0	3	0	Can Improve
1	0	1	0	1	2	1	Can Improve
1	0	0	0	0	0	0	Can Improve
	0	1	1	0	2	1	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	1	1	-1	Can Improve
	1	1	1	1	4	2	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	1	0	2	-2	Aced Pre

	0	1	0	0	1	1	Can Improve
	0	0	1	0	1	-2	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	1	0	0	1	-1	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	0	1	0	0	1	1	Can Improve
	1	1	0	1	3	0	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	1	0	1	2	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	0	3	-1	Aced Pre
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	1	3	-1	Aced Pre
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	-4	Aced Pre
	0	0	0	0	0	-1	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	2	Can Improve
	0	0	0	1	1	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre

	1	1	1	0	3	2	Can Improve
	0	0	0	0	0	0	Can Improve
	1	0	0	0	1	-2	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	1	0	0	1	1	Can Improve
	0	1	1	0	2	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	0	Can Improve
	0	1	1	1	3	0	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	0	2	1	Can Improve
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	-3	Can Improve
	1	0	0	0	1	0	Can Improve

Average gain A (fraction dolphin)	0.1714
Average gain B (Baseball math)	-0.024
T test	0.1921

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID
81944	70468	22684	donass@worc.k12.ma.us	25033
	190010	130394	courtneyimbriglio@orange-elem.org	24783
	170258	22684	donass@worc.k12.ma.us	25033
	166088	22684	donass@worc.k12.ma.us	25033
	191627	130394	courtneyimbriglio@orange-elem.org	24783
	171473	63846	dwarms@dcrsd.org	23714
	166690	22684	donass@worc.k12.ma.us	25033
	191497	130394	courtneyimbriglio@orange-elem.org	24783
	176539	63846	dwarms@dcrsd.org	23713
	97333	22684	donass@worc.k12.ma.us	25033
	191444	130394	courtneyimbriglio@orange-elem.org	24783
	171476	63846	dwarms@dcrsd.org	23714
	72545	22684	donass@worc.k12.ma.us	25033
	191643	130394	courtneyimbriglio@orange-elem.org	24783
	104275	22684	donass@worc.k12.ma.us	25033
	171487	63846	dwarms@dcrsd.org	23714
	191447	130394	courtneyimbriglio@orange-elem.org	24783
	182612	63846	dwarms@dcrsd.org	23712
	166059	22684	donass@worc.k12.ma.us	25033
	171485	63846	dwarms@dcrsd.org	23714
	166093	22684	donass@worc.k12.ma.us	25033
	191436	130394	courtneyimbriglio@orange-elem.org	24783
	191438	130394	courtneyimbriglio@orange-elem.org	24783
	191559	130394	courtneyimbriglio@orange-elem.org	24783
	72549	22684	donass@worc.k12.ma.us	25033
	191628	130394	courtneyimbriglio@orange-elem.org	24783
	190028	130394	courtneyimbriglio@orange-elem.org	24783
	101318	22684	donass@worc.k12.ma.us	25033
	191576	130394	courtneyimbriglio@orange-elem.org	24783
	176550	63846	dwarms@dcrsd.org	23712
	191579	130394	courtneyimbriglio@orange-elem.org	24783
	163241	22684	donass@worc.k12.ma.us	25033
	72543	22684	donass@worc.k12.ma.us	25033
	162831	22684	donass@worc.k12.ma.us	25033
	191561	130394	courtneyimbriglio@orange-elem.org	24783
	190011	130394	courtneyimbriglio@orange-elem.org	24783
	98741	22684	donass@worc.k12.ma.us	25033
	191631	130394	courtneyimbriglio@orange-elem.org	24783
	170844	63846	dwarms@dcrsd.org	23713
	164812	22684	donass@worc.k12.ma.us	25033
	171489	63846	dwarms@dcrsd.org	23714
	101322	22684	donass@worc.k12.ma.us	25033
	119576	22684	donass@worc.k12.ma.us	25033

191574	130394	courtneyimbriglio@orange-elem.org	24783
170867	63846	dwarms@dcrsd.org	23713
98964	22684	donass@worc.k12.ma.us	25033
101319	22684	donass@worc.k12.ma.us	25033
101316	22684	donass@worc.k12.ma.us	25033
170857	63846	dwarms@dcrsd.org	23713
170849	63846	dwarms@dcrsd.org	23713
101572	22684	donass@worc.k12.ma.us	25033
162848	22684	donass@worc.k12.ma.us	25033
98751	22684	donass@worc.k12.ma.us	25033
171472	63846	dwarms@dcrsd.org	23714
163020	22684	donass@worc.k12.ma.us	25033
162842	22684	donass@worc.k12.ma.us	25033
70458	22684	donass@worc.k12.ma.us	25033
170256	22684	donass@worc.k12.ma.us	25033
50312	22684	donass@worc.k12.ma.us	25033
117142	22684	donass@worc.k12.ma.us	25033
191636	130394	courtneyimbriglio@orange-elem.org	24783
191569	130394	courtneyimbriglio@orange-elem.org	24783
191460	130394	courtneyimbriglio@orange-elem.org	24783
191453	130394	courtneyimbriglio@orange-elem.org	24783
70456	22684	donass@worc.k12.ma.us	25033
190014	130394	courtneyimbriglio@orange-elem.org	24783
191564	130394	courtneyimbriglio@orange-elem.org	24783
170850	63846	dwarms@dcrsd.org	23713
98756	22684	donass@worc.k12.ma.us	25033
191454	130394	courtneyimbriglio@orange-elem.org	24783
102031	22684	donass@worc.k12.ma.us	25033
163004	22684	donass@worc.k12.ma.us	25033
98695	22684	donass@worc.k12.ma.us	25033
170848	63846	dwarms@dcrsd.org	23713
163002	22684	donass@worc.k12.ma.us	25033
102172	22684	donass@worc.k12.ma.us	25033
181798	22684	donass@worc.k12.ma.us	25033
163006	22684	donass@worc.k12.ma.us	25033
170851	63846	dwarms@dcrsd.org	23713
191451	130394	courtneyimbriglio@orange-elem.org	24783
191618	130394	courtneyimbriglio@orange-elem.org	24783
191449	130394	courtneyimbriglio@orange-elem.org	24783
102025	22684	donass@worc.k12.ma.us	25033
191456	130394	courtneyimbriglio@orange-elem.org	24783
98733	22684	donass@worc.k12.ma.us	25033
163688	22684	donass@worc.k12.ma.us	25033
191629	130394	courtneyimbriglio@orange-elem.org	24783
191567	130394	courtneyimbriglio@orange-elem.org	24783
101570	22684	donass@worc.k12.ma.us	25033
191565	130394	courtneyimbriglio@orange-elem.org	24783

115904	22684	donass@worc.k12.ma.us	25033
163311	22684	donass@worc.k12.ma.us	25033
98997	22684	donass@worc.k12.ma.us	25033
166684	22684	donass@worc.k12.ma.us	25033
170246	22684	donass@worc.k12.ma.us	25033
163025	22684	donass@worc.k12.ma.us	25033
163839	22684	donass@worc.k12.ma.us	25033
191443	130394	courtneyimbriglio@orange-elem.org	24783
162359	22684	donass@worc.k12.ma.us	25033
98696	22684	donass@worc.k12.ma.us	25033
171481	63846	dwarms@dcrsd.org	23712
170248	22684	donass@worc.k12.ma.us	25033
163895	22684	donass@worc.k12.ma.us	25033
190016	130394	courtneyimbriglio@orange-elem.org	24783
163324	22684	donass@worc.k12.ma.us	25033
102761	22684	donass@worc.k12.ma.us	25033
177220	63846	dwarms@dcrsd.org	23712
101567	22684	donass@worc.k12.ma.us	25033
98996	22684	donass@worc.k12.ma.us	25033
166735	22684	donass@worc.k12.ma.us	25033
194230	63846	dwarms@dcrsd.org	23712
163909	22684	donass@worc.k12.ma.us	25033
72558	22684	donass@worc.k12.ma.us	25033
72547	22684	donass@worc.k12.ma.us	25033
104287	22684	donass@worc.k12.ma.us	25033
171479	63846	dwarms@dcrsd.org	23714
166094	22684	donass@worc.k12.ma.us	25033
191437	130394	courtneyimbriglio@orange-elem.org	24783
191566	130394	courtneyimbriglio@orange-elem.org	24783
98961	22684	donass@worc.k12.ma.us	25033
163917	22684	donass@worc.k12.ma.us	25033
163318	22684	donass@worc.k12.ma.us	25033
97336	22684	donass@worc.k12.ma.us	25033
100394	22684	donass@worc.k12.ma.us	25033
190019	130394	courtneyimbriglio@orange-elem.org	24783
193178	130394	courtneyimbriglio@orange-elem.org	24783
102183	22684	donass@worc.k12.ma.us	25033
70463	22684	donass@worc.k12.ma.us	25033
102019	22684	donass@worc.k12.ma.us	25033
169943	63846	dwarms@dcrsd.org	23713
98732	22684	donass@worc.k12.ma.us	25033
190021	130394	courtneyimbriglio@orange-elem.org	24783
190020	130394	courtneyimbriglio@orange-elem.org	24783
171496	63846	dwarms@dcrsd.org	23714
98710	22684	donass@worc.k12.ma.us	25033
193179	130394	courtneyimbriglio@orange-elem.org	24783
98982	22684	donass@worc.k12.ma.us	25033

163309	22684	donass@worc.k12.ma.us	25033
102021	22684	donass@worc.k12.ma.us	25033
104274	22684	donass@worc.k12.ma.us	25033
104432	22684	donass@worc.k12.ma.us	25033
162837	22684	donass@worc.k12.ma.us	25033
104357	22684	donass@worc.k12.ma.us	25033
190012	130394	courtneyimbriglio@orange-elem.org	24783
113806	22684	donass@worc.k12.ma.us	25033
191642	130394	courtneyimbriglio@orange-elem.org	24783
173071	22684	donass@worc.k12.ma.us	25033
175906	63846	dwarms@dcrsd.org	23712
191637	130394	courtneyimbriglio@orange-elem.org	24783
191621	130394	courtneyimbriglio@orange-elem.org	24783
98713	22684	donass@worc.k12.ma.us	25033
163681	22684	donass@worc.k12.ma.us	25033
100618	22684	donass@worc.k12.ma.us	25033
70467	22684	donass@worc.k12.ma.us	25033
170865	63846	dwarms@dcrsd.org	23713
98692	22684	donass@worc.k12.ma.us	25033
171483	63846	dwarms@dcrsd.org	23714
166348	22684	donass@worc.k12.ma.us	25033
166102	22684	donass@worc.k12.ma.us	25033
131743	22684	donass@worc.k12.ma.us	25033
182197	63846	dwarms@dcrsd.org	23712
191623	130394	courtneyimbriglio@orange-elem.org	24783
164817	22684	donass@worc.k12.ma.us	25033
170243	22684	donass@worc.k12.ma.us	25033
163316	22684	donass@worc.k12.ma.us	25033
163305	22684	donass@worc.k12.ma.us	25033
98685	22684	donass@worc.k12.ma.us	25033
104361	22684	donass@worc.k12.ma.us	25033
163017	22684	donass@worc.k12.ma.us	25033
101575	22684	donass@worc.k12.ma.us	25033
191457	130394	courtneyimbriglio@orange-elem.org	24783
162840	22684	donass@worc.k12.ma.us	25033
98962	22684	donass@worc.k12.ma.us	25033
98755	22684	donass@worc.k12.ma.us	25033
171484	63846	dwarms@dcrsd.org	23714
102026	22684	donass@worc.k12.ma.us	25033
191432	130394	courtneyimbriglio@orange-elem.org	24783
100739	22684	donass@worc.k12.ma.us	25033
190026	130394	courtneyimbriglio@orange-elem.org	24783
97327	22684	donass@worc.k12.ma.us	25033
190024	130394	courtneyimbriglio@orange-elem.org	24783
190025	130394	courtneyimbriglio@orange-elem.org	24783
193134	130394	courtneyimbriglio@orange-elem.org	24783
102126	22684	donass@worc.k12.ma.us	25033

104368	22684	donass@worc.k12.ma.us	25033
163312	22684	donass@worc.k12.ma.us	25033
163746	22684	donass@worc.k12.ma.us	25033
102131	22684	donass@worc.k12.ma.us	25033
98689	22684	donass@worc.k12.ma.us	25033
98726	22684	donass@worc.k12.ma.us	25033
191563	130394	courtneyimbriglio@orange-elem.org	24783
166696	22684	donass@worc.k12.ma.us	25033
98968	22684	donass@worc.k12.ma.us	25033
191448	130394	courtneyimbriglio@orange-elem.org	24783
170854	63846	dwarms@dcrsd.org	23713
168303	22684	donass@worc.k12.ma.us	25033
104284	22684	donass@worc.k12.ma.us	25033
102022	22684	donass@worc.k12.ma.us	25033
191571	130394	courtneyimbriglio@orange-elem.org	24783
104438	22684	donass@worc.k12.ma.us	25033
98979	22684	donass@worc.k12.ma.us	25033
190017	130394	courtneyimbriglio@orange-elem.org	24783
167324	22684	donass@worc.k12.ma.us	25033
167314	22684	donass@worc.k12.ma.us	25033
190023	130394	courtneyimbriglio@orange-elem.org	24783
171475	63846	dwarms@dcrsd.org	23714
100771	22684	donass@worc.k12.ma.us	25033
191496	130394	courtneyimbriglio@orange-elem.org	24783
190007	130394	courtneyimbriglio@orange-elem.org	24783
191455	130394	courtneyimbriglio@orange-elem.org	24783
98753	22684	donass@worc.k12.ma.us	25033
163005	22684	donass@worc.k12.ma.us	25033
102194	22684	donass@worc.k12.ma.us	25033
104875	22684	donass@worc.k12.ma.us	25033
191441	130394	courtneyimbriglio@orange-elem.org	24783

Did not finish	370857/597559	370835/597537	370847/597549	Pre Sum	370975/598972	370975/597679	370975/598993	370972/597674	370972/597676
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370972/597675	Technical difficulties	370840/597542	370851/597553	370859/597561	Post Sum	Difference	
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		1	1		2	-1	Aced Pre
					0	-2	Can Improve
					0	-1	Can Improve
		0	1		1	0	Can Improve
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-2	Can Improve
					0	-1	Can Improve
1					0	-2	Can Improve
					0	-3	Aced Pre
					0	-3	Aced Pre
					0	0	Can Improve
					0	0	Can Improve
					0	-3	Aced Pre
					0	-1	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	-3	Aced Pre
1					0	0	Can Improve
					0	-2	Can Improve
					0	0	Can Improve
					0	-2	Can Improve
					0	-3	Aced Pre
					0	-2	Can Improve
					0	-3	Aced Pre
					0	-1	Can Improve
					0	-2	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-1	Can Improve
					0	-2	Can Improve
					0	-3	Aced Pre
					0	-2	Can Improve
1					0	-3	Aced Pre
					0	-2	Can Improve
					0	-2	Can Improve
					0	-3	Aced Pre
					0	0	Can Improve
1	1	0	1	1	2	-1	Aced Pre
1	1	0	0	0	0	-1	Can Improve
1	1	0	0	0	0	0	Can Improve

1	1	0	0	1	1	0	Can Improve
1	1	1	1	1	3	0	Aced Pre
1	1	0	1	1	2	1	Can Improve
1	1	0	0	0	0	-1	Can Improve
1	1	1	1	1	3	0	Aced Pre
1	1	1			1	-2	Aced Pre
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		0	1	0	1	-1	Can Improve
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		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		0	1	1	2	-1	Aced Pre
		1	1	1	3	0	Aced Pre
		0	1	0	1	-1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	1	Can Improve
		1	1	0	2	0	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		1	1	1	3	1	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	0	Aced Pre
		0	0	0	0	-1	Can Improve
		0	1	1	2	0	Can Improve
		0	1	0	1	1	Can Improve
		1	1	1	3	2	Can Improve
		0	1	1	2	1	Can Improve
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		0	1	0	1	-1	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
		1	1	1	3	1	Can Improve
		1	1	1	3	0	Aced Pre
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		1	1	1	3	1	Can Improve
		0	0	0	0	0	Can Improve
		0	1	1	2	0	Can Improve
		1	1	1	3	0	Aced Pre
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	0	0	0	0	0	Can Improve
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	1	1	1	3	0	Aced Pre
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	0	1	1	2	0	Can Improve
	1	1	1	3	0	Aced Pre
	0	1	1	2	1	Can Improve
	1	1	1	3	1	Can Improve
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1	0	1	0	1	-2	Aced Pre
1	1	1	1	3	0	Aced Pre

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1	1	0	0	1	-1	Can Improve
1	0	1	1	2	0	Can Improve
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1	0	1	0	1	1	Can Improve
1	1	1	1	3	0	Aced Pre
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1	0	1	1	2	0	Can Improve
1	1	1	1	3	0	Aced Pre
1	0	0	1	1	-1	Can Improve
1	1	1	1	3	1	Can Improve
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1	1	1	1	3	0	Aced Pre
1	0	1	1	2	0	Can Improve
1	0	1	1	2	-1	Aced Pre

1	0	0	0	0	0	Can Improve
1	0	0	0	0	-1	Can Improve
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1	1	1	1	3	0	Aced Pre
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1	1	0	1	2	0	Can Improve
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1	1	1	1	3	0	Aced Pre
1	1	1	1	3	0	Aced Pre
1	1	1	0	2	-1	Aced Pre
1	1	1	1	3	0	Aced Pre
1	0	0	0	0	-1	Can Improve
1	0	1	0	1	0	Can Improve

Average gain A (Rounding decimals)	0.2469
Average gain B (Baseball Math)	0.0595
T test	0.0704

Problem Set #	Student ID	Teacher ID	Teacher Login	Class ID	Did not finish	378004/606847
89945	163018	22684	donass@worc.k12.ma.us	25033	1	1
	156515	156514	aruel@rsu23.org	22284	1	1
	163236	22684	donass@worc.k12.ma.us	25033	1	1
	164814	22684	donass@worc.k12.ma.us	25033	1	1
	163683	22684	donass@worc.k12.ma.us	25033	1	0
	123027	22684	donass@worc.k12.ma.us	25033	1	0
	163001	22684	donass@worc.k12.ma.us	25033	1	1
	163675	22684	donass@worc.k12.ma.us	25033	1	1
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	165137	22684	donass@worc.k12.ma.us	25033	1	1
	163676	22684	donass@worc.k12.ma.us	25033	1	1
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	163128	22684	donass@worc.k12.ma.us	25033	1	1
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	119576	22684	donass@worc.k12.ma.us	25033		1
	163013	22684	donass@worc.k12.ma.us	25033		1
	100613	22684	donass@worc.k12.ma.us	25033		1
	102029	22684	donass@worc.k12.ma.us	25033		1
	170244	22684	donass@worc.k12.ma.us	25033		0
	164793	156514	aruel@rsu23.org	22284		1
	98962	22684	donass@worc.k12.ma.us	25033		0
	167315	22684	donass@worc.k12.ma.us	25033		1
	104368	22684	donass@worc.k12.ma.us	25033		0
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	101319	22684	donass@worc.k12.ma.us	25033		1
	168303	22684	donass@worc.k12.ma.us	25033		0
	98996	22684	donass@worc.k12.ma.us	25033		1
	72544	22684	donass@worc.k12.ma.us	25033		1
	166686	22684	donass@worc.k12.ma.us	25033		1
	162992	22684	donass@worc.k12.ma.us	25033		1
	163905	22684	donass@worc.k12.ma.us	25033		1
	161907	22684	donass@worc.k12.ma.us	25033		0

162843	22684	donass@worc.k12.ma.us	25033	1
102172	22684	donass@worc.k12.ma.us	25033	1
163915	22684	donass@worc.k12.ma.us	25033	1
98742	22684	donass@worc.k12.ma.us	25033	1
162840	22684	donass@worc.k12.ma.us	25033	1
163746	22684	donass@worc.k12.ma.us	25033	1
98968	22684	donass@worc.k12.ma.us	25033	1
100620	22684	donass@worc.k12.ma.us	25033	1
100195	22684	donass@worc.k12.ma.us	25033	1
98980	22684	donass@worc.k12.ma.us	25033	1
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163309	22684	donass@worc.k12.ma.us	25033	1
98751	22684	donass@worc.k12.ma.us	25033	1
101569	22684	donass@worc.k12.ma.us	25033	1
70461	22684	donass@worc.k12.ma.us	25033	1
162832	22684	donass@worc.k12.ma.us	25033	1
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70458	22684	donass@worc.k12.ma.us	25033	1
164468	156514	aruel@rsu23.org	22284	1
170256	22684	donass@worc.k12.ma.us	25033	1
50312	22684	donass@worc.k12.ma.us	25033	1
163000	22684	donass@worc.k12.ma.us	25033	1
163102	22684	donass@worc.k12.ma.us	25033	1
70454	22684	donass@worc.k12.ma.us	25033	1
167326	22684	donass@worc.k12.ma.us	25033	1
163237	22684	donass@worc.k12.ma.us	25033	1
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166350	22684	donass@worc.k12.ma.us	25033	1
163003	22684	donass@worc.k12.ma.us	25033	1
131743	22684	donass@worc.k12.ma.us	25033	1
165130	156514	aruel@rsu23.org	22284	1
163897	22684	donass@worc.k12.ma.us	25033	1
181798	22684	donass@worc.k12.ma.us	25033	0
176968	22684	donass@worc.k12.ma.us	25033	0
98685	22684	donass@worc.k12.ma.us	25033	0
98745	22684	donass@worc.k12.ma.us	25033	0
165257	156514	aruel@rsu23.org	22284	1
104883	22684	donass@worc.k12.ma.us	25033	1
101566	22684	donass@worc.k12.ma.us	25033	1
102026	22684	donass@worc.k12.ma.us	25033	1
163238	22684	donass@worc.k12.ma.us	25033	0

102126	22684	donass@worc.k12.ma.us	25033	1
102028	22684	donass@worc.k12.ma.us	25033	1
101570	22684	donass@worc.k12.ma.us	25033	0
102131	22684	donass@worc.k12.ma.us	25033	1
104360	22684	donass@worc.k12.ma.us	25033	1
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98997	22684	donass@worc.k12.ma.us	25033	0
163079	22684	donass@worc.k12.ma.us	25033	1
166185	22684	donass@worc.k12.ma.us	25033	1
163025	22684	donass@worc.k12.ma.us	25033	1
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165135	156514	aruel@rsu23.org	22284	1
163310	22684	donass@worc.k12.ma.us	25033	0
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104301	22684	donass@worc.k12.ma.us	25033	1
164813	22684	donass@worc.k12.ma.us	25033	1
97524	22684	donass@worc.k12.ma.us	25033	1
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72547	22684	donass@worc.k12.ma.us	25033	1
104287	22684	donass@worc.k12.ma.us	25033	1
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102019	22684	donass@worc.k12.ma.us	25033	1
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165132	156514	aruel@rsu23.org	22284	0
161906	22684	donass@worc.k12.ma.us	25033	1
163020	22684	donass@worc.k12.ma.us	25033	1
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167317	22684	donass@worc.k12.ma.us	25033	1
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98711	22684	donass@worc.k12.ma.us	25033	1
72549	22684	donass@worc.k12.ma.us	25033	1
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162988	22684	donass@worc.k12.ma.us	25033	1
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98741	22684	donass@worc.k12.ma.us	25033	1

104444	22684	donass@worc.k12.ma.us	25033	1
163005	22684	donass@worc.k12.ma.us	25033	1
98750	22684	donass@worc.k12.ma.us	25033	0
167311	22684	donass@worc.k12.ma.us	25033	1

378005/606848	378006/606849	378007/606850	Pre Sum	378014/606859	378014/606857	378014/606858	378015/606862	378015/606861	378015/606860
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1	1	1	3					1	1

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1	1	1	4	1	1

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0	1	1	2	1	1
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Technical Difficulties	378008/606851	378009/606852	378010/606853	378011/606854	Post Sum	Difference	
1					0	-4	Aced Pre
					0	-4	Aced Pre
					0	-3	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-3	Can Improve
					0	-4	Aced Pre
					0	-3	Can Improve
		1			1	-3	Aced Pre
					0	0	Can Improve
					0	-3	Can Improve
					0	-4	Aced Pre
					0	-1	Can Improve
					0	-4	Aced Pre
					0	0	Can Improve
					0	-4	Aced Pre
					0	-2	Can Improve
					0	-3	Can Improve
					0	-4	Aced Pre
					0	-1	Can Improve
					0	-4	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	0	0	0	0	0	-1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	0	1	0	0	1	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	2	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	2	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	0	1	1	1	3	1	Can Improve
1	0	1	0	0	1	-1	Can Improve
1	0	0	1	1	2	1	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	1	Can Improve

1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	0	1	1	0	2	0	Can Improve
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
1	1	1	1	1	4	0	Aced Pre
	0	1	0	0	1	-2	Can Improve
	0	1	1	0	2	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	3	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	0	0	1	-1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
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	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	1	1	1	3	-1	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	1	0	1	2	0	Can Improve
	1	1	1	0	3	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	1	0	0	0	1	0	Can Improve
	0	1	1	0	2	-1	Can Improve
	0	0	0	0	0	0	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	0	1	1	3	-1	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	2	Can Improve

	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	0	0	0	1	-3	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	0	0	-2	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	0	1	1	-2	Can Improve
	1	1	0	1	3	-1	Aced Pre
	1	0	0	1	2	0	Can Improve
	1	0	1	0	2	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	1	0	1	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	0	0	1	1	2	-1	Can Improve
	0	1	1	0	2	0	Can Improve
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	1	1	1	1	4	0	Aced Pre
	1	1	0	1	3	-1	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	1	3	1	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	1	1	-1	Can Improve
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	1	1	3	-1	Aced Pre
	1	1	1	1	4	0	Aced Pre
	1	0	0	0	1	1	Can Improve

1	1	1	1	4	0	Aced Pre
0	1	1	1	3	0	Can Improve
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
0	0	0	1	1	-3	Aced Pre
1	1	1	1	4	0	Aced Pre
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1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
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1	1	1	1	4	0	Aced Pre
1	1	0	1	3	1	Can Improve
0	1	1	1	3	2	Can Improve
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1	1	1	1	4	0	Aced Pre
1	1	1	0	3	-1	Aced Pre
0	1	1	1	3	1	Can Improve
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
0	1	1	1	3	0	Can Improve
1	1	1	1	4	1	Can Improve
0	0	0	0	0	-2	Can Improve
1	1	1	1	4	0	Aced Pre
1	0	0	0	1	-3	Aced Pre
1	1	1	1	4	1	Can Improve
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre
1	1	1	1	4	0	Aced Pre

	1	1	1	0	3	2	Can Improve
	1	1	1	1	4	0	Aced Pre
	0	0	0	1	1	-1	Can Improve
	1	1	1	1	4	0	Aced Pre
				Average gain A (balloon pop)	-0.052		
				Average gain B (Tug Team)	-0.086		
				T test	0.4047		