Templates

- 57322

    - All answers are randomized from 10 to 194. One answer is divisible by 2. The others are not. Contains over 29 million possible combinations.

- 57331

- Contains 30 possible sets. Every digit of each answer is defined separately. One answer is divisible by 3. The others are not.

- 57616

- All answers are randomized from 104 to 2100. One answer is divisible by 4. One is divisible by 2, but not 4. The others are odd numbers. Contains over 5 trillion possible combinations.

- 57618

- All answers are randomized from 10 to 1995. One answer is divisible by 5. The others are not. Contains over 10 trillion possible combinations.

- 57624

    - Contains 24 possible sets. Every digit of each answer is defined separately. One answer is divisible by 6. One answer is divisible by 3, but not 2. Two answers are divisible by 2, but not 3. One answer is divisible by neither 2 nor 3.

- 62274

    - Contains 30 possible sets. Every digit of each answer is defined separately. One answer is divisible by 3, but not 9. Four answers are divisible by neither 9 nor 3.

- 57623

- All answers are randomized from 10 to 1995. One answer is divisible by 10. The others are not. Contains over 7 trillion possible combinations.

Problem Set "Appendix - Divisibility" id:[10059]

1) Assistment #57322 "57322 - Divisibility by 2"

Which number is divisible by 2?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}

Scaffold:

How do we tell if a number is divisible by 2?

Multiple choice:

- ✓ All numbers that end with 2, 4, 6, 8, or 0 are divisible by 2
- ✗ If the sum of the digits is divisible by 2, then so is the number
  13 is not divisible by 2, even though 1+3=4 and 4 is divisible by 2
- ✗ A number is only divisible by 2 if it ends with 2
  4 is divisible by 2
- ✗ A number is only divisible by 2 if it ends with 0
  4 is divisible by 2

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 2?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}

Hints:

Look at the last digit of each number:

%v{ia} **%v{ja}**
%v{ib} **%v{jb}**
%v{ic} **%v{jc}**
%v{id} **%v{jd}**
%v{ie} **%v{je}**

%v{a} ends with %v{ja}. Select %v{a}.

2) Assistment #63806 "63806 - 57322 - Divisibility by 2"

Which number is divisible by 2?

Multiple choice:

- ✓ 62

✗ 31
✗ 61
✗ 131
✗ 165

Scaffold:

How do we tell if a number is divisible by 2?

Multiple choice:

✓ All numbers that end with 2, 4, 6, 8, or 0 are divisible by 2

✗ If the sum of the digits is divisible by 2, then so is the number

13 is not divisible by 2, even though 1+3=4 and 4 is divisible by 2

✗ A number is only divisible by 2 if it ends with 2

4 is divisible by 2

✗ A number is only divisible by 2 if it ends with 0

4 is divisible by 2

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 2?

Multiple choice:

✓ 62

✗ 31

✗ 61

✗ 131

✗ 165

Hints:

Look at the last digit of each number:

6**2**
3**1**
6**1**
13**1**
16**5**

62 ends with 2. Select 62.

3) Assistment #57331 "57331 - Divisibility by 3"

Which number is divisible by 3?

Multiple choice:

✓ %v{a}

✗ %v{b}

✗ %v{c}

✗ %v{d}

✗ %v{e}

Scaffold:

How do we tell if a number is divisible by 3?

Multiple choice:

✓ If the sum of the digits is divisible by 3, then so is the number

✗ Any number that ends with 3 is divisible by 3

13 is not divisible by 3

✗ Any number that ends with 3, 6, or 9 is divisible by 3

13, 16, and 19 are not divisible by 3

✗ If the last two digits are divisible by 3, then so is the number

112 is not divisible by 3, even though 12 is divisible by 3

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 3?

Multiple choice:

✓ %v{a}

✗ %v{b}

✗ %v{c}

✗ %v{d}

✗ %v{e}

Hints:

Add up the digits of each number:

%v{a}: %v{a100}+%v{a10}+%v{a1} = %v{asum}
%v{b}: %v{b100}+%v{b10}+%v{b1} = %v{bsum}
%v{c}: %v{c100}+%v{c10}+%v{c1} = %v{csum}
%v{d}: %v{d100}+%v{d10}+%v{d1} = %v{dsum}
%v{e}: %v{e100}+%v{e10}+%v{e1} = %v{esum}

%v{asum} **is** divisible by three, so %v{a} **is** divisible by three.
%v{bsum} **is not** divisible by three, so %v{b} **is not** divisible by three.
%v{csum} **is not** divisible by three, so %v{c} **is not** divisible by three.
%v{dsum} **is not** divisible by three, so %v{d} **is not** divisible by three.
%v{esum} **is not** divisible by three, so %v{e} **is not** divisible by three.

Select %v{a}.

4) Assistment #63816 "63816 - 57331 - Divisibility by 3"

Which number is divisible by 3?

Multiple choice:

✓ 72

✗ 76

✗ 55

✗ 119

✗ 134

Scaffold:

How do we tell if a number is divisible by 3?

Multiple choice:

✓ If the sum of the digits is divisible by 3, then so is the number

✗ Any number that ends with 3 is divisible by 3

13 is not divisible by 3

✗ Any number that ends with 3, 6, or 9 is divisible by 3

13, 16, and 19 are not divisible by 3

✗ If the last two digits are divisible by 3, then so is the number

112 is not divisible by 3, even though 12 is divisible by 3

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 3?

Multiple choice:

✓ 72

✗ 76

✗ 55

✗ 119

✗ 134

Hints:

Add up the digits of each number:

72: 0+7+2 = 9
76: 0+7+6 = 13
55: 0+5+5 = 10
119: 1+1+9 = 11
134: 1+3+4 = 8

9 **is** divisible by three, so 72 **is** divisible by three.
13 **is not** divisible by three, so 76 **is not** divisible by three.
10 **is not** divisible by three, so 55 **is not** divisible by three.
11 **is not** divisible by three, so 119 **is not** divisible by three.
8 **is not** divisible by three, so 134 **is not** divisible by three.

Select 72.

5) Assistment #57616 "57616 - Divisibility by 4"

Which number is divisible by 4?

Multiple choice:

✓ %v{a}

✗ %v{w1}

✗ %v{w2}

✗ %v{w3}

✗ %v{w4}

Scaffold:

How do we tell if a number is divisible by 4?

Multiple choice:

✗ All numbers that end with 2, 4, 6, 8, or 0 are divisible by 4
2, 6, and 10 are not divisible by 4.

✗ Any number that ends with 4 is divisible by 4
14 is not divisible by 4.

✓ If the last two digits are divisible by 4, then so is the number

✗ If the sum of the digits is divisible by 4, then so is the number
13 is not divisible by four, even though 1+3=4

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 4?

Multiple choice:

✓ %v{a}

✗ %v{w1}

✗ %v{w2}

✗ %v{w3}

✗ %v{w4}

Hints:

Look at the last two digits of each number:

%v{ca}%v{da}
%v{cw1}%v{dw1}
%v{cw2}%v{dw2}
%v{cw3}%v{dw3}
%v{cw4}%v{dw4}

Odd numbers (numbers that end with 1,3, 5, 7, or 9) are **not** divisible by 4 because they are not divisible by 2 (a factor of 4).

%v{cw1}%v{dw1}
%v{cw2}%v{dw2}

These choices are not divisible by four because they end with odd numbers. They can be eliminated.

~~%v{cw1}%v{dw1}~~
~~%v{cw2}%v{dw2}~~
%v{da} **is** divisible by four, so %v{ca}%v{da} **is** divisible by four.
%v{dw3} **is not** divisible by four, so %v{cw3}%v{dw3} **is not** divisible by four.
%v{dw4} **is not** divisible by four, so %v{cw4}%v{dw4} **is not** divisible by four.

Select %v{ca}%v{da}.

6) Assistment #63826 "63826 - 57616 - Divisibility by 4"

Which number is divisible by 4?

Multiple choice:

✓ 104
✗ 711
✗ 841
✗ 710
✗ 1638

Scaffold:

How do we tell if a number is divisible by 4?

Multiple choice:

✗ All numbers that end with 2, 4, 6, 8, or 0 are divisible by 4

2, 6, and 10 are not divisible by 4.

✗ Any number that ends with 4 is divisible by 4

14 is not divisible by 4.

✓ If the last two digits are divisible by 4, then so is the number

✗ If the sum of the digits is divisible by 4, then so is the number

13 is not divisible by four, even though 1+3=4

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 4?

Multiple choice:

✓ 104

✗ 711

✗ 841

✗ 710

✗ 1638

Hints:

Look at the last two digits of each number:

14
711
841
710
1638

Odd numbers (numbers that end with 1,3, 5, 7, or 9) are **not** divisible by 4 because they are not divisible by 2 (a factor of 4).

711
841

These choices are not divisible by four because they end with odd numbers. They can be eliminated.

~~711~~
~~841~~
4 **is** divisible by four, so 14 **is** divisible by four.
10 **is not** divisible by four, so 710 **is not** divisible by four.

38 **is not** divisible by four, so 1638 **is not** divisible by four.

Select 14.

7) Assistment #57618 "57618 - Divisibility by 5"

Which number is divisible by 5?

Multiple choice:

- ✓ %v{a}
- ✗ %v{w1}
- ✗ %v{w2}
- ✗ %v{w3}
- ✗ %v{w4}

Scaffold:

How do we tell if a number is divisible by 2?

Multiple choice:

- ✗ Only numbers that end with 5 are divisible by 5.
- ✓ Only numbers that end with 5 or 0 are divisible by 5.
- ✗ If the sum of the digits is divisible by 5, so is the number.

Hints:

Look for a pattern:

1 * 5 = 5
2 * 5 = 10
3 * 5 = 15
4 * 5 = 20
5 * 5 = 25
6 * 5 = 30

If you multiply a number by five, the product will always end with a 5 or 0.
Therefore, allnumbersthatendwith5or0aredivisibleby5.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 5?

Multiple choice:

- ✓ %v{a}
- ✗ %v{w1}
- ✗ %v{w2}
- ✗ %v{w3}
- ✗ %v{w4}

Hints:

Look at the last digit of each number:

%v{ba}%v{da}
%v{bw1}%v{dw1}

%v{bw2}%v{dw2}
%v{bw3}%v{dw3}
%v{bw4}%v{dw4}

%v{ba}%v{da} ends with %v{da}, so it must be divisible by 5. Select %v{a}.

8) Assistment #63836 "63836 - 57618 - Divisibility by 5"

Which number is divisible by 5?

Multiple choice:

- ✓ 775
- ✗ 161
- ✗ 1653
- ✗ 1757
- ✗ 1049

Scaffold:

How do we tell if a number is divisible by 2?

Multiple choice:

- ✗ Only numbers that end with 5 are divisible by 5.
- ✓ Only numbers that end with 5 or 0 are divisible by 5.
- ✗ If the sum of the digits is divisible by 5, so is the number.

Hints:

Look for a pattern:

1 * 5 = 5
2 * 5 = 10
3 * 5 = 15
4 * 5 = 20
5 * 5 = 25
6 * 5 = 30

If you multiply a number by five, the product will always end with a 5 or 0.
Therefore, allnumbersthatendwith5or0aredivisibleby5.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 5?

Multiple choice:

- ✓ 775
- ✗ 161
- ✗ 1653
- ✗ 1757
- ✗ 1049

Hints:

Look at the last digit of each number:

775
161

1653
1757
1049

775 ends with 5, so it must be divisible by 5. Select 775.

9) Assistment #57624 "57624 - Divisibility by 6"

Which number is divisible by 6?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}

Scaffold:

How do we tell if a number is divisible by 6?

Multiple choice:

- ✓ If a number is divisible by 2 and 3, then it is divisible by 6
- ✗ Any number that ends with 6 is divisible by 6

  16 is not divisible by 6
- ✗ If the last two digits are divisible by 6, then so is the number

  112 is not divisible by 6, even though 12 is divisible by 6
- ✗ If the sum of the digits is divisible by 6, then so is the number

  57 is not divisible by 6, even though 5+7=12 and 12 is divisible by 6

Scaffold:

Which of the following numbers is divisible by 2?

Select all that apply.

Check all that apply:

- ✓ %v{a}
- ✗ %v{b}
- ✓ %v{c}
- ✗ %v{d}
- ✓ %v{e}

Hints:

All numbers that end with 2, 4, 6, 8, or 0 are divsible by 2.

Look at the last digit of each number:

%v{a100}%v{a10}**%v{a1}**
%v{b100}%v{b10}**%v{b1}**
%v{c100}%v{c10}**%v{c1}**
%v{d100}%v{d10}**%v{d1}**
%v{e100}%v{e10}**%v{e1}**

%v{a} ends with %v{a1}. Select %v{a}.
%v{c} ends with %v{c1}. Select %v{c}.

%v{e} ends with %v{e1}. Select %v{e}.

%v{a}, %v{c}, and %v{e} are all divisible by 2.

Scaffold:

Numbers that are not divisible by 2 were eliminated.

Of the remaining numbers, which ones are divisible by 3?

Select all that apply.

Check all that apply:

- ✓ %v{a}
- ✗ %v{c}
- ✗ %v{e}

Hints:

If the sum of the digits is divisible by 3, then so is the number.

Add up the digits of each number:

~~%v{b}~~
~~%v{d}~~
%v{a}: %v{a100}+%v{a10}+%v{a1} = %v{asum}
%v{c}: %v{c100}+%v{c10}+%v{c1} = %v{csum}
%v{e}: %v{e100}+%v{e10}+%v{e1} = %v{esum}

%v{asum} **is** divisible by three, so %v{a} **is** divisible by three.
%v{csum} **is not** divisible by three, so %v{c} **is not** divisible by three.
%v{esum} **is not** divisible by three, so %v{e} **is not** divisible by three.

Select %v{a}.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 6?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}

Hints:

So far, we've determined:

%v{a} is divisible by 2 and 3.
%v{b} is divisible not divisible by 2 or 3.
%v{c} is divisible by 2.
%v{d} is divisible by 3.
%v{e} is divisible by 2.

%v{a} is the only number divisible by both 2 and 3. Therefore, it is the only number divisible by 6.

Select %v{a}.

10) Assistment #63856 "63856 - 57624 - Divisibility by 6"

Which number is divisible by 6?

Multiple choice:

- ✓ 186
- ✗ 133
- ✗ 122
- ✗ 171
- ✗ 166

Scaffold:

How do we tell if a number is divisible by 6?

Multiple choice:

- ✓ If a number is divisible by 2 and 3, then it is divisible by 6
- ✗ Any number that ends with 6 is divisible by 6
  16 is not divisible by 6
- ✗ If the last two digits are divisible by 6, then so is the number
  112 is not divisible by 6, even though 12 is divisible by 6
- ✗ If the sum of the digits is divisible by 6, then so is the number
  57 is not divisible by 6, even though 5+7=12 and 12 is divisible by 6

Scaffold:

Which of the following numbers is divisible by 2?

Select all that apply.

Check all that apply:

- ✓ 186
- ✗ 133
- ✓ 122
- ✗ 171
- ✓ 166

Hints:

All numbers that end with 2, 4, 6, 8, or 0 are divsible by 2.

Look at the last digit of each number:

18**6**
13**3**
12**2**
17**1**
16**6**

186 ends with 6. Select 186.
122 ends with 2. Select 122.
166 ends with 6. Select 166.

186, 122, and 166 are all divisible by 2.

Scaffold:

Numbers that are not divisible by 2 were eliminated.

Of the remaining numbers, which ones are divisible by 3?

Select all that apply.

Check all that apply:

✓ 186

✗ 122

✗ 166

Hints:

If the sum of the digits is divisible by 3, then so is the number.

Add up the digits of each number:

~~133~~
~~171~~
186: 1+8+6 = 15
122: 1+2+2 = 5
166: 1+6+6 = 13

15 **is** divisible by three, so 186 **is** divisible by three.
5 **is not** divisible by three, so 122 **is not** divisible by three.
13 **is not** divisible by three, so 166 **is not** divisible by three.

Select 186.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 6?

Multiple choice:

✓ 186

✗ 133

✗ 122

✗ 171

✗ 166

Hints:

So far, we've determined:

186 is divisible by 2 and 3.
133 is divisible not divisible by 2 or 3.
122 is divisible by 2.
171 is divisible by 3.
166 is divisible by 2.

186 is the only number divisible by both 2 and 3. Therefore, it is the only number divisible by 6.
Select 186.

11) Assistment #62274 "62274 - Divisibility by 9"

Which number is divisible by 9?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}
- ✗ %v{f}

Scaffold:

How do we tell if a number is divisible by 3?

Multiple choice:

- ✓ If the sum of the digits is divisible by 9, then so is the number
- ✗ Any number that ends with 9 is divisible by 9

  19 is not divisible by 9
- ✗ If the sum of the digits is divisible by 3, then the number is divisible by 9

  12 (1+2=3) is not divisible by 9
- ✗ If the last two digits are divisible by 9, then so is the number

  118 is not divisible by 9, even though 18 is divisible by 9

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 9?

Multiple choice:

- ✓ %v{a}
- ✗ %v{b}
- ✗ %v{c}
- ✗ %v{d}
- ✗ %v{e}
- ✗ %v{f}

Hints:

Add up the digits of each number:

%v{a}: %v{a100}+%v{a10}+%v{a1} = %v{asum}
%v{b}: %v{b100}+%v{b10}+%v{b1} = %v{bsum}
%v{c}: %v{c100}+%v{c10}+%v{c1} = %v{csum}
%v{d}: %v{d100}+%v{d10}+%v{d1} = %v{dsum}
%v{e}: %v{e100}+%v{e10}+%v{e1} = %v{esum}
%v{f}: %v{e100}+%v{e10}+%v{e1} = %v{fsum}

%v{asum} **is** divisible by nine, so %v{a} **is** divisible by nine.
%v{bsum} **is not** divisible by nine, so %v{b} **is not** divisible by nine.
%v{csum} **is not** divisible by nine, so %v{c} **is not** divisible by nine.
%v{dsum} **is not** divisible by nine, so %v{d} **is not** divisible by nine.
%v{esum} **is not** divisible by nine, so %v{e} **is not** divisible by nine.
%v{fsum} **is not** divisible by nine, so %v{f} **is not** divisible by nine.

Select %v{a}.

12) Assistment #63866 "63866 - 62274 - Divisibility by 9"

Which number is divisible by 9?

Multiple choice:

- ✓ 189
- ✗ 76
- ✗ 55
- ✗ 119
- ✗ 134
- ✗ 183

Scaffold:

How do we tell if a number is divisible by 3?

Multiple choice:

- ✓ If the sum of the digits is divisible by 9, then so is the number
- ✗ Any number that ends with 9 is divisible by 9
  19 is not divisible by 9
- ✗ If the sum of the digits is divisible by 3, then the number is divisible by 9
  12 (1+2=3) is not divisible by 9
- ✗ If the last two digits are divisible by 9, then so is the number
  118 is not divisible by 9, even though 18 is divisible by 9

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 9?

Multiple choice:

- ✓ 189
- ✗ 76
- ✗ 55
- ✗ 119
- ✗ 134
- ✗ 183

Hints:

Add up the digits of each number:

189: 1+8+9 = 18
76: 0+7+6 = 13
55: 0+5+5 = 10
119: 1+1+9 = 11
134: 1+3+4 = 8
183: 1+3+4 = 12

18 **is** divisible by nine, so 189 **is** divisible by nine.
13 **is not** divisible by nine, so 76 **is not** divisible by nine.

10 **is not** divisible by nine, so 55 **is not** divisible by nine.
11 **is not** divisible by nine, so 119 **is not** divisible by nine.
8 **is not** divisible by nine, so 134 **is not** divisible by nine.
12 **is not** divisible by nine, so 183 **is not** divisible by nine.

Select 189.

13) Assistment #57623 "57623 - Divisibility by 10"

Which number is divisible by 10?

Multiple choice:

- ✓ %v{a}
- ✗ %v{w1}
- ✗ %v{w2}
- ✗ %v{w3}
- ✗ %v{w4}

Scaffold:

How do we tell if a number is divisible by 10?

Multiple choice:

- ✓ Only numbers that end with 0 are divisible by 10.
- ✗ Only numbers that end with 5 or 0 are divisible by 10.
- ✗ If the sum of the digits is divisible by 10, so is the number.

Hints:

Look for a pattern:

1 * 10 = 10
2 * 10 = 20
3 * 10 = 30
4 * 10 = 40
5 * 10 = 50
6 * 10 = 60

If you multiply a number by ten, the product will always end with a 0.
Therefore, allnumbersthatendwith0aredivisibleby10.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 10?

Multiple choice:

- ✓ %v{a}
- ✗ %v{w1}
- ✗ %v{w2}
- ✗ %v{w3}
- ✗ %v{w4}

Hints:

Look at the last digit of each number:

%v{ba}0
%v{bw1}%v{dw1}
%v{bw2}%v{dw2}
%v{bw3}%v{dw3}
%v{bw4}%v{dw4}

%v{ba} ends with 0, so it must be divisible by 10. Select %v{a}.

14) Assistment #63846 "63846 - 57623 - Divisibility by 10"

Which number is divisible by 10?

Multiple choice:

- ✓ 1310
- ✗ 1222
- ✗ 764
- ✗ 86
- ✗ 289

Scaffold:

How do we tell if a number is divisible by 10?

Multiple choice:

- ✓ Only numbers that end with 0 are divisible by 10.
- ✗ Only numbers that end with 5 or 0 are divisible by 10.
- ✗ If the sum of the digits is divisible by 10, so is the number.

Hints:

Look for a pattern:

1 * 10 = 10
2 * 10 = 20
3 * 10 = 30
4 * 10 = 40
5 * 10 = 50
6 * 10 = 60

If you multiply a number by ten, the product will always end with a 0.
Therefore, allnumbersthatendwith0aredivisibleby10.

Scaffold:

Now, let's return to the original problem.

Which number is divisible by 10?

Multiple choice:

- ✓ 1310
- ✗ 1222
- ✗ 764
- ✗ 86
- ✗ 289

Hints:

Look at the last digit of each number:

1310
1222
764
86
289

131 ends with 0, so it must be divisible by 10.

Skill	Class
Exponential Growth vs Decay	Algebra

Mastery Problem Set	Number of Templates
#10057	2
Number to Master	Number of Attempts
3	10

Templates

- 56522

  - Coeficients are randomized positive integers from 2 to 42.
  - Exponential terms: two are between 0 and 1, and two are greater than 1.
  - Contains over 22 billion possible combinations.

- 57613

  - Coeficients are randomized positive integers from 2 to 42.
  - Exponential terms: two are between 0 and 1, and two are greater than 1.
  - Contains over 22 billion possible combinations.
  - Order is randomized.

Matt Crocker

Problem Set "Sequence #10060" id:[10060]

1) Assistment #56522 "56522 - Exponential Growth"

Select **ALL** of the functions that display exponential **growth**.

Check all that apply:

- ✓ %v{p1}(%v{n1}^x)
- ✓ %v{p2}(%v{n2}^x)
- ✗ %v{p3}(%v{n3}^x)
- ✗ %v{p4}(%v{n4}^x)
- ✗ %v{m}x+%v{y}
- ✗ (x^2)-%v{b}x+%v{c}

Hints:

The selection contains three types of functions:

Linear -> mx + b

Parabolic -> ax^2 + bx + c

Exponential -> a(b^x)

The problem statement only asks for exponential growth.

%v{m}x + %v{y} and (x^2) - %v{b}x + %v{c} are NOT exponential functions, so they cannot display exponential growth.

Now we must determine whether the remaining choices display exponential growth or exponential decay:

%v{p1}(%v{n1}^x)
%v{p2}(%v{n2}^x)
%v{p3}(%v{n3}^x)
%v{p4}(%v{n4}^x)

A positive coefficient with no exponent will not affect exponential growth or decay.

Therefore, since all of the remaining choices have positive coeficients, we can disregard this value and look ONLY at the exponential term.

y = coefficent(exponential term^{x})

When a number greater than one is multiplied to itself, it increases (or grows.)

When a positive number less than one is multiplied to itself, it decreases (or decays.)

y = %v{p1}(%v{n1}^{x}) and y= %v{p2}(%v{n2}^{x}) both have exponential terms greater than one.

As x increases, y increases exponentially. This is **exponential growth**. Select both terms.

2) Assistment #83789 "83789 - 56522 - Exponential Growth"

Select **ALL** of the functions that display exponential **growth**.

Check all that apply:

- ✓ 37(9^x)
- ✓ 2(14^x)
- ✗ 13(0.1^x)
- ✗ 28(0.05^x)
- ✗ 4x+3
- ✗ (x^2)-4x+7

Hints:

The selection contains three types of functions:

Linear -> mx + b

Parabolic -> ax^2 + bx + c

Exponential -> a(b^x)

The problem statement only asks for exponential growth.

4x + 3 and (x^2) - 4x + 7 are NOT exponential functions, so they cannot display exponential growth.

Now we must determine whether the remaining choices display exponential growth or exponential decay:

37(9^x)
2(14^x)
13(0.1^x)
28(0.05^x)

A positive coefficient with no exponent will not affect exponential growth or decay.

Therefore, since all of the remaining choices have positive coeficients, we can disregard this value and look ONLY at the exponential term.

$y = \text{coefficent}(\text{exponential term}^x)$

When a number greater than one is multiplied to itself, it increases (or grows.)

When a positive number less than one is multiplied to itself, it decreases (or decays.)

$y = 37(9^x)$ and $y= 2(14^x)$ both have exponential terms greater than one.

As x increases, y increases exponentially. This is **exponential growth**. Select both terms.

3) Assistment #57613 "57613 - Exponential Decay"

Select **ALL** the functions that display exponential **decay**.

Check all that apply:

- ✗ %v{p1}(%v{n1}^x)
- ✗ %v{p2}(%v{n2}^x)
- ✓ %v{p3}(%v{n3}^x)
- ✓ %v{p4}(%v{n4}^x)
- ✗ %v{m}x+%v{y}

✘ (x^2)-%v{b}x+%v{c}

Hints:

The selection contains three types of functions:

Linear -> mx + b

Parabolic -> ax^2 + bx + c

Exponential -> a(b^x)

The problem statement only asks for exponential growth.

%v{m}x + %v{y} and (x^2) - %v{b}x + %v{c} are NOT exponential functions, so they cannot display exponential growth.

Now we must determine whether the remaining choices display exponential growth or exponential decay:

%v{p1}(%v{n1}^x)
%v{p2}(%v{n2}^x)
%v{p3}(%v{n3}^x)
%v{p4}(%v{n4}^x)

A positive coefficient with no exponent will not affect exponential growth or decay.

Therefore, since all of the remaining choices have positive coeficients, we can disregard this value and look ONLY at the exponential term.

y = coefficent(exponential term^{x})

When a number greater than one is multiplied to itself, it increases (or grows.)

When a positive number less than one is multiplied to itself, it decreases (or decays.)

y = %v{p3}(%v{n3}^{x}) and y= %v{p4}(%v{n4}^{x}) both have exponential terms less than one.

As x increases, y decreases exponentially. This is **exponential decay**. Select both terms.

4) Assistment #83799 "83799 - 57613 - Exponential Decay"

Select **ALL** the functions that display exponential **decay**.

Check all that apply:

✘ 19(6^x)
✘ 10(14^x)
✓ 5(0.1^x)
✓ 34(0.05^x)
✘ 3x+6
✘ (x^2)-5x+1

Hints:

The selection contains three types of functions:

Linear -> mx + b

Parabolic -> ax^2 + bx + c

Exponential -> a(b^x)

The problem statement only asks for exponential growth.

3x + 6 and (x^2) - 5x + 1 are NOT exponential functions, so they cannot display exponential growth.

Now we must determine whether the remaining choices display exponential growth or exponential decay:

19(6^x)
10(14^x)
5(0.1^x)
34(0.05^x)

A positive coefficient with no exponent will not affect exponential growth or decay.

Therefore, since all of the remaining choices have positive coeficients, we can disregard this value and look ONLY at the exponential term.

y = coefficent(exponential term^{x})

When a number greater than one is multiplied to itself, it increases (or grows.)

When a positive number less than one is multiplied to itself, it decreases (or decays.)

y = 5(0.1^{x}) and y= 34(0.05^{x}) both have exponential terms less than one.

As x increases, y decreases exponentially. This is **exponential decay**. Select both terms.

Skill	Class
Greatest Common Factor	Arithmetic

Mastery Problem Set	Number of Templates
#8742	11
Number to Master	**Number of Attempts**
3	10

Templates

- 56509

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form □-□+□

- 56775
    - All coefficients and exponents (in decreasing order) are randomized.
        - Randomizations were done with a combination of rand and sets.
        - Coefficients range from 2 to 45. Exponents range from 2 to 6.
        - Contains 1152 possible combinations.
    - Expression is of the form –□+□+□
- 56776
    - All coefficients and exponents (in decreasing order) are randomized.
        - Randomizations were done with a combination of rand and sets.
        - Coefficients range from 2 to 45. Exponents range from 2 to 6.
        - Contains 1152 possible combinations.
    - Expression is of the form □-□-□
- 56777

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form –□+□-□

- 56778

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form -□-□+□

- 56779

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form □+□-□

- 61570

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form □-□+□
- The GCF is a variable only. The coefficients have no common factor.

- 61571

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45. Exponents range from 2 to 6.
  - Contains 1152 possible combinations.
- Expression is of the form -□+□+□
- The GCF is a variable only. The coefficients have no common factor.

- 61572

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45.
  - Contains 36 possible combinations.
- Expression is of the form -□x+□

- 61573

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45.
  - Contains 36 possible combinations.
- Expression is of the form □x-□

- 61574

- All coefficients and exponents (in decreasing order) are randomized.
  - Randomizations were done with a combination of rand and sets.
  - Coefficients range from 2 to 45.
  - Contains 36 possible combinations.
- Expression is of the form □x+□
- There is no GCF in this template, so the answer is always 1.

Problem Set "GCMF Appendix Print" id:[10058]

1) Assistment #56509 "56509 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$\%v\{a\}x^{\%v\{u\}} - \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ %v{f}*x^%v{w}

✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$\%v\{a\}x^{\%v\{u\}} - \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$

$= (\%v\{f\}*\%v\{aset\})x^{\%v\{u\}} - (\%v\{f\}*\%v\{bset\})x^{\%v\{v\}} + (\%v\{f\}*\%v\{cset\})x^{\%v\{w\}}$ Each term has %v{f} in common.

$= \%v\{f\}\ (\ \%v\{aset\}x^{\%v\{u\}} - \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}\ )$

Factor the greatest common variable out of the expression.

$\%v\{f\}\ (\ \%v\{aset\}x^{\%v\{u\}} - \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}\ )$

$= \%v\{f\}\ (\ \%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} - \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} + \%v\{cset\}x^{\%v\{w\}}\ )$ Each term has $x^{\%v\{w\}}$ in common.

$= \%v\{f\}x^{\%v\{w\}}\ (\ \%v\{aset\}x^{\%v\{u0\}} - \%v\{bset\}x^{\%v\{v0\}} + \%v\{cset\}\ )$

The greatest common factor of the original expression is $\%v\{f\}x^{\%v\{w\}}$. Type in %v{f}x^%v{w}.

2) Assistment #63976 "63976 - 56509 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$8x^4 - 16x^3 + 24x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ 8*x^2

✓ -8*x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$8x^4 - 16x^3 + 24x^2$
$= (8*1)x^4 - (8*2)x^3 + (8*3)x^2$ Each term has 8 in common.
$= 8 (1x^4 - 2x^3 + 3x^2)$

Factor the greatest common variable out of the expression.

$8 (1x^4 - 2x^3 + 3x^2)$
$= 8 (1x^2x^2 - 2x^2x^1 + 3x^2)$ Each term has x^2 in common.
$= 8x^2 (1x^2 - 2x^1 + 3)$

The greatest common factor of the original expression is $8x^2$. Type in 8x^2.

3) Assistment #56775 "56775 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?
$-\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:

✓ %v{f}*x^%v{w}

✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$
$= (\%v\{f\}*\%v\{aset\})x^{\%v\{u\}} + (\%v\{f\}*\%v\{bset\})x^{\%v\{v\}} + (\%v\{f\}*\%v\{cset\})x^{\%v\{w\}}$ Each term has %v{f} in common.
$= \%v\{f\} (\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}})$

Factor the greatest common variable out of the expression.

$\%v\{f\} (\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}})$
$= \%v\{f\} (\%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} + \%v\{cset\}x^{\%v\{w\}})$ Each term has $x^{\%v\{w\}}$ in common.
$= \%v\{f\}x^{\%v\{w\}} (\%v\{aset\}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{v0\}} + \%v\{cset\})$

The greatest common factor of the original expression is $\%v\{f\}x^{\%v\{w\}}$. Type in %v{f}x^%v{w}.

4) Assistment #63966 "63966 - 56775 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$-2x^4 + 4x^3 + 6x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ 2*x^2

✓ -2*x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$2x^4 + 4x^3 + 6x^2$

$= (2*1)x^4 + (2*2)x^3 + (2*3)x^2$ Each term has 2 in common.

$= 2 (1x^4 + 2x^3 + 3x^2)$

Factor the greatest common variable out of the expression.

$2 (1x^4 + 2x^3 + 3x^2)$

$= 2 (1x^2x^2 + 2x^2x^1 + 3x^2)$ Each term has x^2 in common.

$= 2x^2 (1x^2 + 2x^1 + 3)$

The greatest common factor of the original expression is $2x^2$. Type in 2x^2.

5) Assistment #56776 "56776 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

%v{a}x^%v{u} - %v{b}x^%v{v} - %v{c}x^%v{w}

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ %v{f}*x^%v{w}

✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

%v{a}x^%v{u} - %v{b}x^%v{v} - %v{c}x^%v{w}
= (%v{f}*%v{aset})x^%v{u} - (%v{f}*%v{bset})x^%v{v} - (%v{f}*%v{cset})x^%v{w} Each term has %v{f} in common.
= %v{f} (%v{aset}x^%v{u} - %v{bset}x^%v{v} - %v{cset}x^%v{w})

Factor the greatest common variable out of the expression.

%v{f} (%v{aset}x^%v{u} - %v{bset}x^%v{v} - %v{cset}x^%v{w})
= %v{f} (%v{aset}x^%v{w}x^%v{u0} - %v{bset}x^%v{w}x^%v{v0} -%v{cset}x^%v{w}) Each term has x^%v{w} in common.
= %v{f}x^%v{w} (%v{aset}x^%v{u0} - %v{bset}x^%v{v0} - %v{cset})

The greatest common factor of the original expression is %v{f}x^%v{w}. Type in %v{f}x^%v{w}.

6) Assistment #63956 "63956 - 56776 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?
$9x^4 - 18x^3 - 27x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:

✓ 9*x^2

✓ -9*x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$9x^4 - 18x^3 - 27x^2$
$= (9*1)x^4 - (9*2)x^3 - (9*3)x^2$ Each term has 9 in common.
$= 9 (1x^4 - 2x^3 - 3x^2)$

Factor the greatest common variable out of the expression.

$9 (1x^4 - 2x^3 - 3x^2)$
$= 9 (1x^2x^2 - 2x^2x^1 - 3x^2)$ Each term has x^2 in common.
$= 9x^2 (1x^2 - 2x^1 - 3)$

The greatest common factor of the original expression is $9x^2$. Type in 9x^2.

7) Assistment #56777 "56777 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$-\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} - \%v\{c\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ %v{f}*x^%v{w}
✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$-\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} - \%v\{c\}x^{\%v\{w\}}$
$= -(\%v\{f\}*\%v\{aset\})x^{\%v\{u\}} + (\%v\{f\}*\%v\{bset\})x^{\%v\{v\}} - (\%v\{f\}*\%v\{cset\})x^{\%v\{w\}}$ Each term has %v{f} in common.
$= \%v\{f\}\ (-\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} - \%v\{cset\}x^{\%v\{w\}})$

Factor the greatest common variable out of the expression.

$\%v\{f\}\ (-\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} - \%v\{cset\}x^{\%v\{w\}})$
$= \%v\{f\}\ (-\%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} - \%v\{cset\}x^{\%v\{w\}})$ Each term has $x^{\%v\{w\}}$ in common.
$= \%v\{f\}x^{\%v\{w\}}\ (-\%v\{aset\}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{v0\}} - \%v\{cset\})$

The greatest common factor of the original expression is $\%v\{f\}x^{\%v\{w\}}$. Type in %v{f}x^%v{w}.

8) Assistment #63946 "63946 - 56777 - GCF"
What is the *greatest common factor* shared by the monomials in the following expression?
$-4x^5 + 8x^4 - 12x^3$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ 4*x^3
✓ -4*x^3

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$-4x^5 + 8x^4 - 12x^3$
$= -(4*1)x^5 + (4*2)x^4 - (4*3)x^3$ Each term has 4 in common.
$= 4\ (\ -1x^5 + 2x^4 - 3x^3\ )$
Factor the greatest common variable out of the expression.

$4\ (\ -1x^5 + 2x^4 - 3x^3\ )$
$= 4\ (\ -1x^3x^2 + 2x^3x^1 - 3x^3\ )$ Each term has x^3 in common.
$= 4x^3\ (\ -1x^2 + 2x^1 - 3\ )$

The greatest common factor of the original expression is $4x^3$. Type in 4x^3.

9) Assistment #56778 "56778 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?
$-\%v\{a\}x^{\%v\{u\}} - \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3 = 2x\text{^}3$)
If there is no greatest common factor, type in 1.
Algebra:
✓ %v{f}*x^%v{w}
✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$-\%v\{a\}x^{\%v\{u\}} - \%v\{b\}x^{\%v\{v\}} + \%v\{c\}x^{\%v\{w\}}$
$= -(\%v\{f\}*\%v\{aset\})x^{\%v\{u\}} - (\%v\{f\}*\%v\{bset\})x^{\%v\{v\}} + (\%v\{f\}*\%v\{cset\})x^{\%v\{w\}}$ Each term has %v{f} in common.
$= \%v\{f\}\ (\ -\%v\{aset\}x^{\%v\{u\}} - \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}\ )$
Factor the greatest common variable out of the expression.

$\%v\{f\}\ (\ -\%v\{aset\}x^{\%v\{u\}} - \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}\ )$
$= \%v\{f\}\ (\ -\%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} - \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} + \%v\{cset\}x^{\%v\{w\}}\ )$ Each term has $x^{\%v\{w\}}$ in common.
$= \%v\{f\}x^{\%v\{w\}}\ (\ -\%v\{aset\}x^{\%v\{u0\}} - \%v\{bset\}x^{\%v\{v0\}} + \%v\{cset\}\ )$

The greatest common factor of the original expression is $\%v\{f\}x^{\%v\{w\}}$. Type in %v{f}x^%v{w}.

10) Assistment #63936 "63936 - 56778 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$-6x^5 - 12x^4 + 18x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ 6*x^2
✓ -6*x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$-6x^5 - 12x^4 + 18x^2$
$= -(6*1)x^5 - (6*2)x^4 + (6*3)x^2$ Each term has 6 in common.
$= 6 (-1x^5 - 2x^4 + 3x^2)$

Factor the greatest common variable out of the expression.

$6 (-1x^5 - 2x^4 + 3x^2)$
$= 6 (-1x^2x^3 - 2x^2x^2 + 3x^2)$ Each term has x^2 in common.
$= 6x^2 (-1x^3 - 2x^2 + 3)$

The greatest common factor of the original expression is $6x^2$. Type in 6x^2.

11) Assistment #56779 "56779 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?
$\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} - \%v\{c\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ %v{f}*x^%v{w}
✓ -%v{f}*x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$\%v\{a\}x^{\%v\{u\}} + \%v\{b\}x^{\%v\{v\}} - \%v\{c\}x^{\%v\{w\}}$

$= (\%v\{f\} * \%v\{aset\})x^{\%v\{u\}} + (\%v\{f\} * \%v\{bset\})x^{\%v\{v\}} - (\%v\{f\} * \%v\{cset\})x^{\%v\{w\}}$ Each term has $\%v\{f\}$ in common.

$= \%v\{f\} (\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} - \%v\{cset\}x^{\%v\{w\}})$

Factor the greatest common variable out of the expression.

$\%v\{f\} (\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} - \%v\{cset\}x^{\%v\{w\}})$

$= \%v\{f\} (\%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} - \%v\{cset\}x^{\%v\{w\}})$ Each term has $x^{\%v\{w\}}$ in common.

$= \%v\{f\}x^{\%v\{w\}} (\%v\{aset\}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{v0\}} - \%v\{cset\})$

The greatest common factor of the original expression is $\%v\{f\}x^{\%v\{w\}}$. Type in %v{f}x^%v{w}.

12) Assistment #63926 "63926 - 56779 - GCF"

What is the *greatest common factor* shared by the monomials in the following expression?

$5x^4 + 10x^3 - 15x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ 5*x^2

✓ -5*x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

$5x^4 + 10x^3 - 15x^2$

$= (5*1)x^4 + (5*2)x^3 - (5*3)x^2$ Each term has 5 in common.

$= 5 (1x^4 + 2x^3 - 3x^2)$

Factor the greatest common variable out of the expression.

$5 (1x^4 + 2x^3 - 3x^2)$

$= 5 (1x^2x^2 + 2x^2x^1 - 3x^2)$ Each term has x^2 in common.

$= 5x^2 (1x^2 + 2x^1 - 3)$

The greatest common factor of the original expression is $5x^2$. Type in 5x^2.

13) Assistment #61570 "61570 - GCF (no #)"

What is the *greatest common factor* shared by the monomials in the following expression?

$\%v\{aset\}x^{\%v\{u\}} - \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ x^%v{w}
✓ -x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coeficient in common.

The most you can factor out of the coefficients is 1.

Factor the greatest common variable out of the expression.

%v{aset}$x^{\%v\{u\}}$ - %v{bset}$x^{\%v\{v\}}$ + %v{cset}$x^{\%v\{w\}}$
= %v{aset}$x^{\%v\{w\}}x^{\%v\{u0\}}$ - %v{bset}$x^{\%v\{w\}}x^{\%v\{v0\}}$ + %v{cset}$x^{\%v\{w\}}$ Each term has $x^{\%v\{w\}}$ in common.
= $x^{\%v\{w\}}$ (%v{aset}$x^{\%v\{u0\}}$ - %v{bset}$x^{\%v\{v0\}}$ + %v{cset})

The greatest common factor of the original expression is $x^{\%v\{w\}}$. Type in x^%v{w}.

14) Assistment #63916 "63916 - 61570 - GCF (no #)"
What is the *greatest common factor* shared by the monomials in the following expression?
$1x^4 - 2x^3 + 3x^2$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)
If there is no greatest common factor, type in 1.
Algebra:
✓ x^2
✓ -x^2

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coeficient in common.

The most you can factor out of the coefficients is 1.

Factor the greatest common variable out of the expression.

$1x^4 - 2x^3 + 3x^2$
= $1x^2x^2 - 2x^2x^1 + 3x^2$ Each term has x^2 in common.
= x^2 ($1x^2 - 2x^1 + 3$)

The greatest common factor of the original expression is x^2. Type in x^2.

15) Assistment #61571 "61571 - GCF (no #)"

What is the *greatest common factor* shared by the monomials in the following expression?

$-\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ x^%v{w}

✓ -x^%v{w}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coeficient in common.

The most you can factor out of the coefficients is 1.

Factor the greatest common variable out of the expression.

$-\%v\{aset\}x^{\%v\{u\}} + \%v\{bset\}x^{\%v\{v\}} + \%v\{cset\}x^{\%v\{w\}}$

$= -\%v\{aset\}x^{\%v\{w\}}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{w\}}x^{\%v\{v0\}} + \%v\{cset\}x^{\%v\{w\}}$ Each term has $x^{\%v\{w\}}$ in common.

$= x^{\%v\{w\}}$ ($-\%v\{aset\}x^{\%v\{u0\}} + \%v\{bset\}x^{\%v\{v0\}} + \%v\{cset\}$)

The greatest common factor of the original expression is $x^{\%v\{w\}}$. Type in x^%v{w}.

16) Assistment #63906 "63906 - 61571 - GCF (no #)"

What is the *greatest common factor* shared by the monomials in the following expression?

$-1x^6 + 2x^5 + 3x^3$

Use the **carrot** symbol for exponents: ($2x^3$ = 2x^3)

If there is no greatest common factor, type in 1.

Algebra:

✓ x^3

✓ -x^3

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coeficient in common.

The most you can factor out of the coefficients is 1.

Factor the greatest common variable out of the expression.

$-1x^6 + 2x^5 + 3x^3$
$= -1x^3x^3 + 2x^3x^2 + 3x^3$ Each term has x^3 in common.
$= x^3 (-1x^3 + 2x^2 + 3)$

The greatest common factor of the original expression is x^3. Type in x^3.

17) Assistment #61572 "61572 - GCF (linear)"

What is the *greatest common factor* shared by the monomials in the following expression?
-%v{a}x + %v{b}

If there is no greatest common factor, type in 1.

Algebra:

✓ %v{f}

✓ -%v{f}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

-%v{a}x + %v{b}
= (-%v{f}*%v{aset})x + (%v{f}*%v{bset}) Each term has %v{f} in common.
= %v{f} (-%v{aset}x + %v{bset})

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is %v{f}. Type in %v{f}.

18) Assistment #63896 "63896 - 61572 - GCF (linear)"

What is the *greatest common factor* shared by the monomials in the following expression?
-5x + 10

If there is no greatest common factor, type in 1.

Algebra:

✓ 5

✓ -5

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

-5x + 10
= (-5*1)x + (5*2) Each term has 5 in common.
= 5 (-1x + 2)

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is 5. Type in 5.

19) Assistment #61573 "61573 - GCF (linear)"

What is the *greatest common factor* shared by the monomials in the following expression?
%v{a}x - %v{b}

If there is no greatest common factor, type in 1.

Algebra:

✓ %v{f}

✓ -%v{f}

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

%v{a}x - %v{b}
= (%v{f}*%v{aset})x - (%v{f}*%v{bset}) Each term has %v{f} in common.
= %v{f} (%v{aset}x - %v{bset})

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is %v{f}. Type in %v{f}.

20) Assistment #63886 "63886 - 61573 - GCF (linear)"

What is the *greatest common factor* shared by the monomials in the following expression?
8x - 16

If there is no greatest common factor, type in 1.

Algebra:

✓ 8

✓ -8

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

Begin by factoring the greatest common coeficient out of the expression.

8x - 16
= (8*1)x - (8*2) Each term has 8 in common.
= 8 (1x - 2)

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is 8. Type in 8.

21) Assistment #61574 "61574 - GCF (none)"

What is the *greatest common factor* shared by the monomials in the following expression?
%v{aset}x + %v{bset}

If there is no greatest common factor, type in 1.

Algebra:

✓ 1

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coefficient in common.
The most you can factor out of the expression is 1.

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is 1 because it cannot be factored.

22) Assistment #63876 "63876 - 61574 - GCF (none)"

What is the *greatest common factor* shared by the monomials in the following expression?
1x + 2

If there is no greatest common factor, type in 1.

Algebra:

✓ 1

Hints:

Try factoring out the greatest common **coeficent** first

and then

the greatest common **variable** second.

The terms have no greatest common coefficient in common.
The most you can factor out of the expression is 1.

The terms have no greatest common variable in common.
The most you can factor out of the expression is 1.

The greatest common factor of the original expression is 1 because it cannot be factored.

Skill	Class
Quadrants	Algebra

Mastery Problem Set	Number of Templates
#7922	2
Number to Master	Number of Attempts
5	10

Templates

- 55927 (makes 10)

- There are ten possible questions: One for each point on the graph (A-K).
- The answers are comprised of sets that correspond to each point, so that the correct answer always displays the proper quadrant.

- 58277 (makes 10)

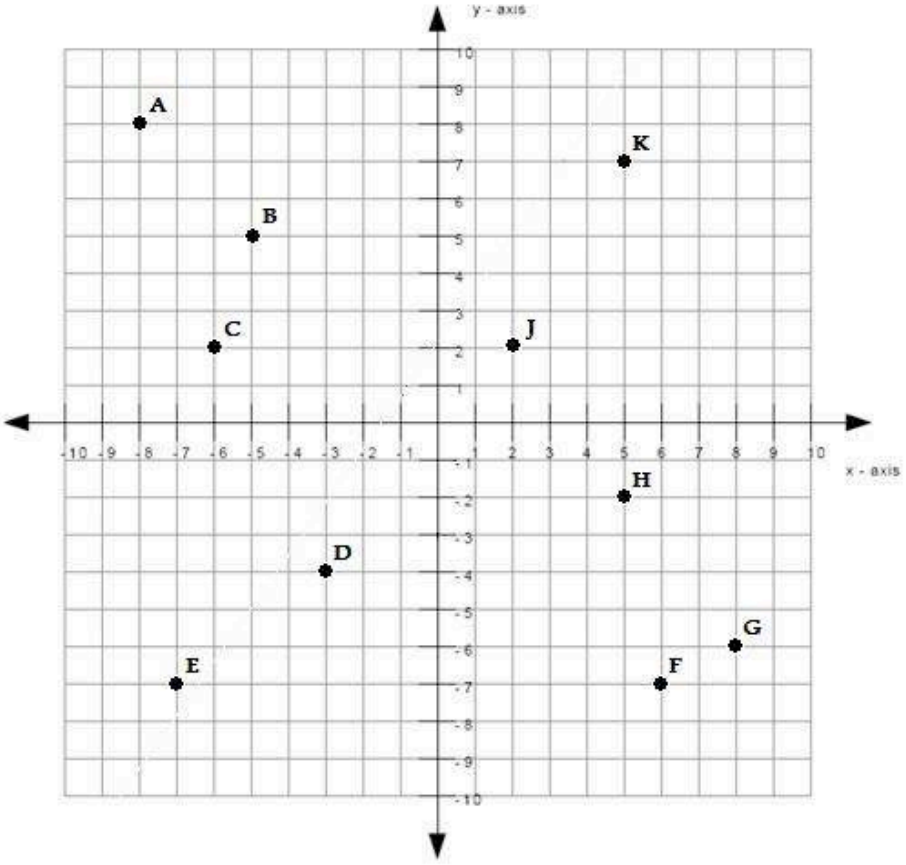
- There are ten possible questions: One for each point on the graph (L-V).
- The answers are comprised of sets that correspond to each point, so that the correct answer always displays the proper quadrant.

Matt Crocker

Problem Set "Appendix - Quadrants" id:[10061]

1) Assistment #56528 "56528 - Quadrants"

Which quadrant is point %v{p} located in?

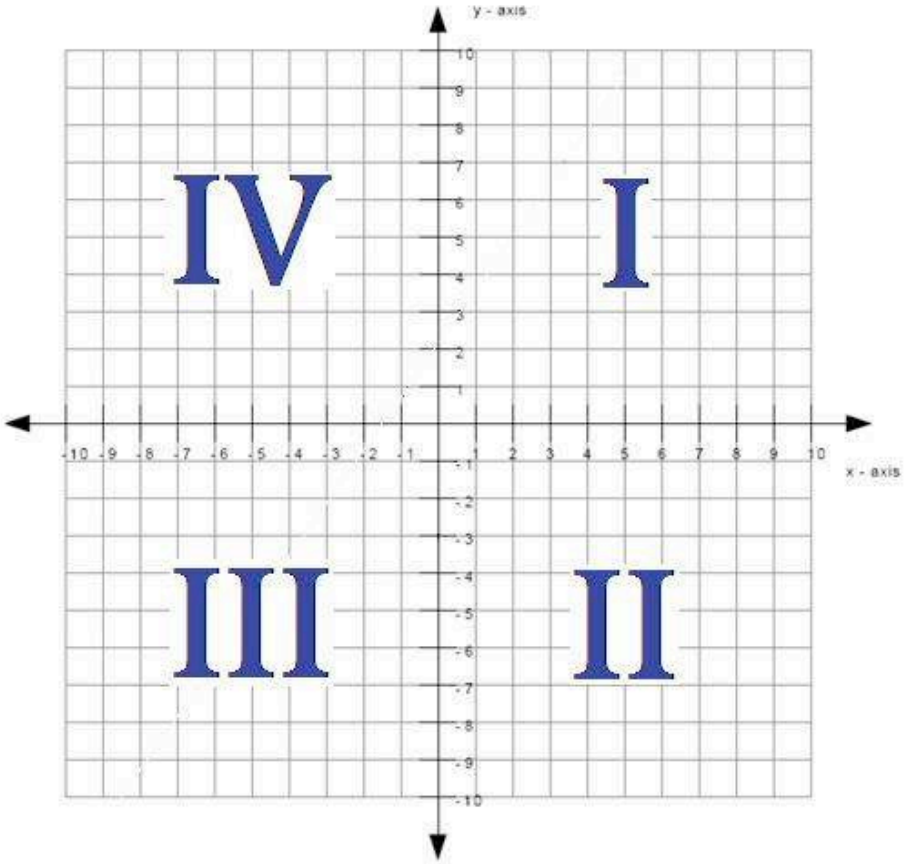


Multiple choice:

- ✓ Quadrant %v{q}
- ✗ Quadrant %v{w1}
- ✗ Quadrant %v{w2}
- ✗ Quadrant %v{w3}

Hints:

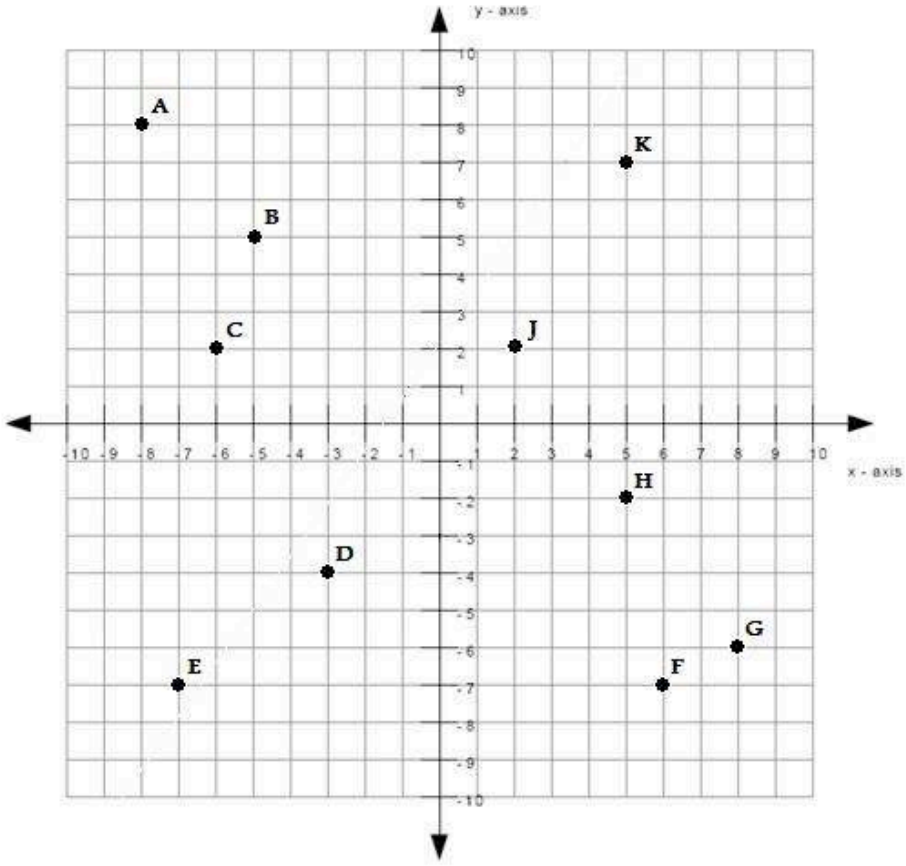
The locations of all four quadrants are labeled on the graph below:



Point %v{p} has a %v{x} x value and a %v{y} y value. Therefore, it lies within Quadrant %v{q}.
Select Quandrant %v{q}.

2) Assistment #59841 "59841 - 56528 - Quadrants"

Which quadrant is point A located in?

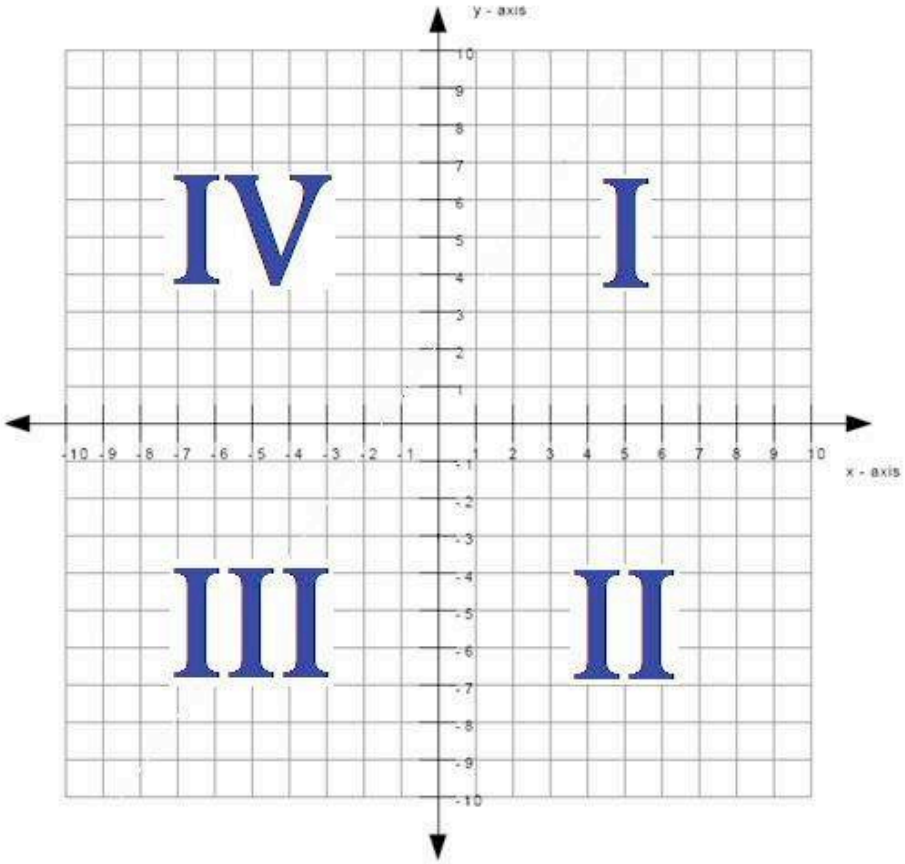


Multiple choice:

- ✓ Quadrant IV
- ✗ Quadrant III
- ✗ Quadrant II
- ✗ Quadrant I

Hints:

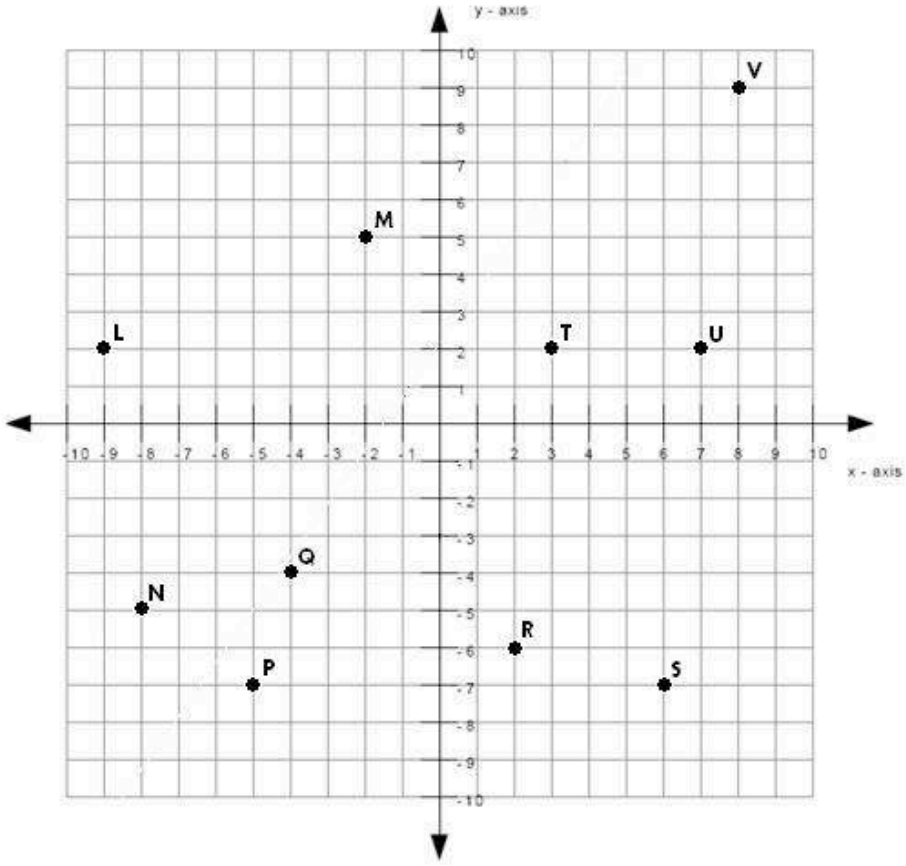
The locations of all four quadrants are labeled on the graph below:



Point A has a negative x value and a positive y value. Therefore, it lies within Quadrant IV.
Select Quandrant IV.

3) Assistment #58277 "58277 - Quadrants"

Which quadrant is point %v{p} located in?

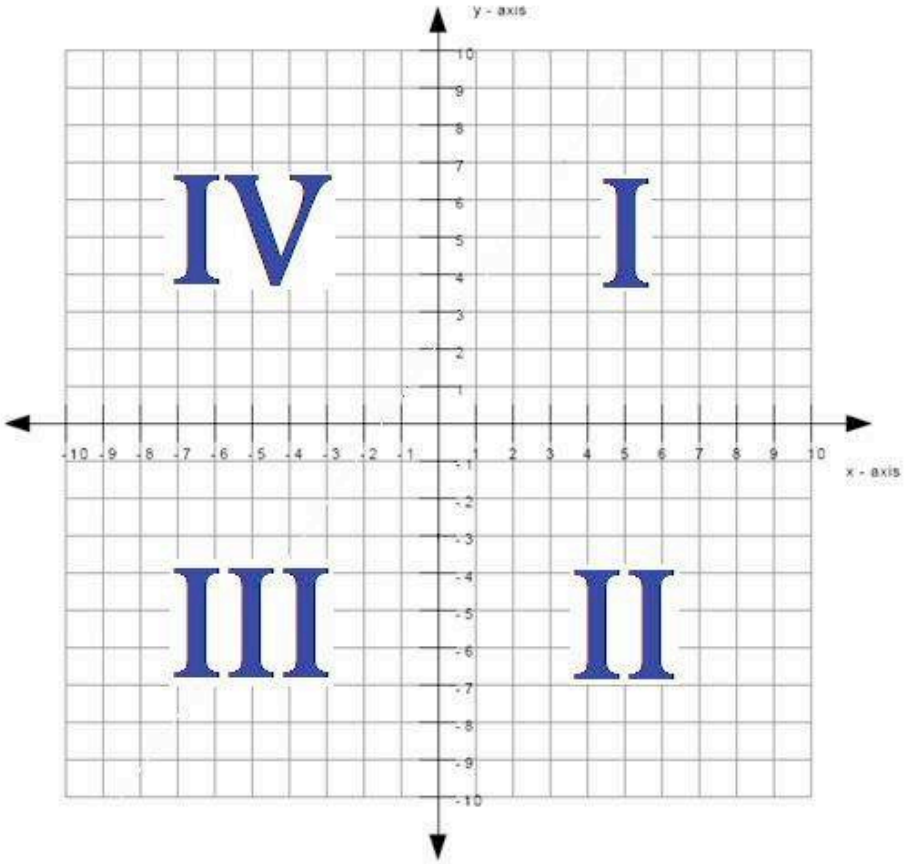


Multiple choice:

- ✓ Quadrant %v{q}
- ✗ Quadrant %v{w1}
- ✗ Quadrant %v{w2}
- ✗ Quadrant %v{w3}

Hints:

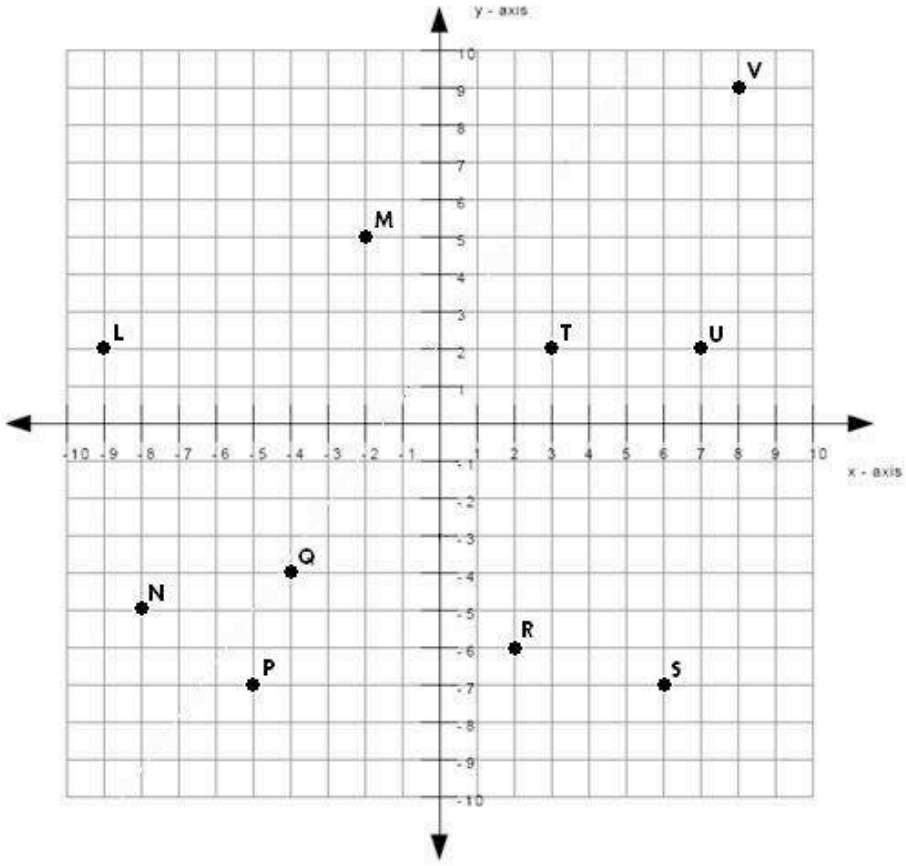
The locations of all four quadrants are labeled on the graph below:



Point %v{p} has a %v{x} x value and a %v{y} y value. Therefore, it lies within Quadrant %v{q}.
Select Quandrant %v{q}.

4) Assistment #59871 "59871 - 58277 - Quadrants"

Which quadrant is point L located in?



Multiple choice:

✓ Quadrant IV

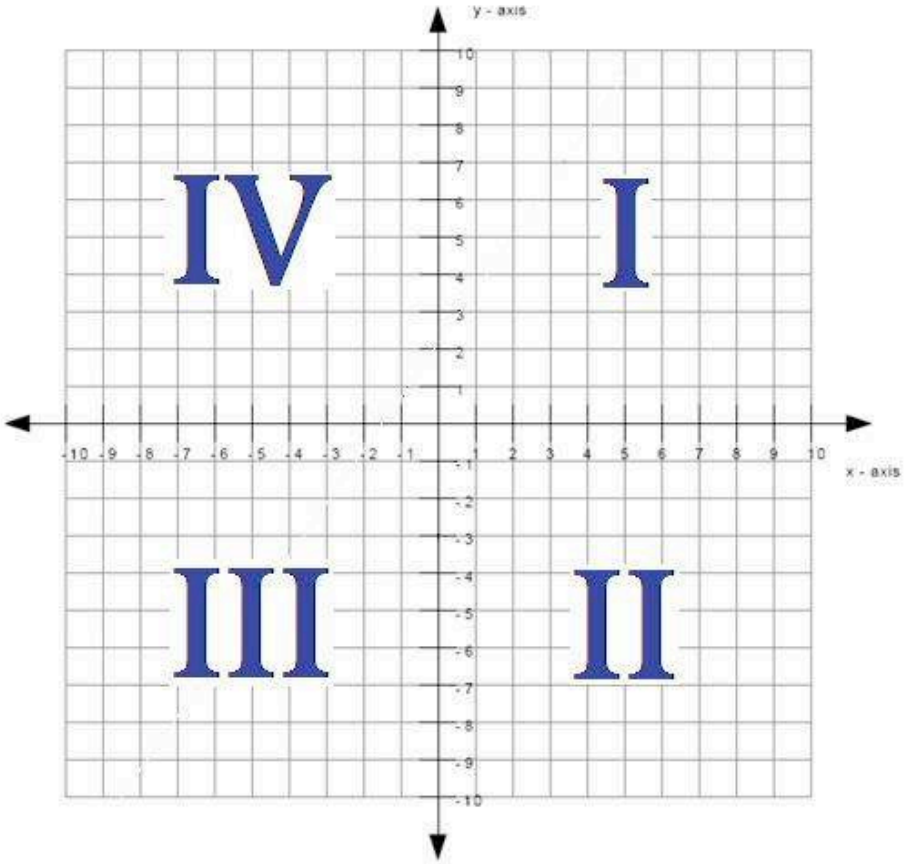
✗ Quadrant III

✗ Quadrant II

✗ Quadrant I

Hints:

The locations of all four quadrants are labeled on the graph below:



Point L has a negative x value and a positive y value. Therefore, it lies within Quadrant IV.
Select Quandrant IV.

Skill	Class
Vocabulary of Expressions	Algebra

Mastery Problem Set	Number of Templates
#10293	3
Number to Master	Number of Attempts
5	10

Templates

- 58625

  - All coefficients (from 1-28), constants (from 3-30), and variables (with a set of 13 combinations of letters) are randomized. The negation of terms is also randomized.

and variables. Contains 104,000 possible combinations.

- 58275

    - All coefficients (from 1-28), constants (from 3-30), and variables (with a set of 13 combinations of letters) are randomized. The negation of terms is also randomized. Students must check all that apply. Possible answers include coefficients, constants, and variables. Contains 104,000 possible combinations.

- 58276

  - All coefficients (from 1-20), constants (from 1-20), and variables (with a set of 13 combinations of letters) are randomized. The negation of terms is also randomized. The first and third terms share the same variable. Students must check all that apply. Possible answers include coefficients, constants, and variables. Contains 130,000 possible combinations.

- 62323

  - All coefficients (from 1-20), constants (from 1-20), and variables (thirteen possible letters) are randomized. The negation of terms is also randomized. The answer to this template is always “Trinomial”. Contains over 110,000 possible combinations.

- 62324
    - All coefficients (from 1-20), constants (from 1-20), and variables (thirteen possible letters) are randomized. The negation of terms is also randomized. The answer to this template is always “Binomial”. Contains over 56,000 possible combinations.
- 62325
    - All coefficients (from 1-20), constants (from 1-20), and variables (thirteen possible letters) are randomized. The negation of terms is also randomized. The answer to this template is always “Trinomial”. Contains over 1400 possible combinations.

- 62367

    - All coefficients (from 1-20) and constants (from 1-20) are randomized. Students must check all that apply. Possible answers include quadratic equations, linear equations, and 3rd order equations. Contains over 10 quintillion possible combinations.

- 62368

  - All coefficients (from 1-20) and constants (from 1-20) are randomized. Students must check all that apply. Possible answers include linear equations, quadratic equations, and 3rd order equations. Contains over 10 quintillion possible combinations.

Matt Crocker

Problem Set "Appendix - Vocabulary of Expressions" id:[10224]

1) Assistment #58265 "58265 - Vocabulary - Coefficients"

What are the coefficients in the following expression?

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

Select all that apply.

Check all that apply:

- ✗ %v{pa}%v{a}%v{x}
- ✗ %v{pb}%v{b}%v{y}
- ✗ %v{x}
- ✗ %v{y}
- ✓ %v{pa}%v{a}
- ✓ %v{pb}%v{b}
- ✗ %v{pc}%v{c}

Scaffold:

Let's look at the solution for a problem similar to the one above:

PROBLEM:

What are the coefficients and constants in the following expression?
+2x -3y +5

SOLUTION:

Coefficients are numbers multiplied to variables.
Constants are numbers that stand alone and do not vary.

+2x -3y +5

+2 and -3 are multiplied to variables, which means they are coefficients.
+5 is not multiplied to a variable, which means it does not vary and is therefore a constant.

Multiple choice:

- ✓ I have read the example and now I am ready to try again.

Scaffold:

Now try the original problem again.
You may look back at the worked example if this helps.

What are the coefficients in the following expression?

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

Select all that apply.

Check all that apply:

- ✗ %v{pa}%v{a}%v{x}
- ✗ %v{pb}%v{b}%v{y}

✗ %v{x}
✗ %v{y}
✓ %v{pa}%v{a}
✓ %v{pb}%v{b}
✗ %v{pc}%v{c}

Hints:

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

The variables in this expression are %v{x} and %v{y}.

%v{pa}%v{a} and %v{pb}%v{b} are both multiplied to variables, so they are coefficients.
Select both %v{pa}%v{a} and %v{pb}%v{b}.

2) Assistment #59901 "59901 - 58265 - Vocabulary - Coefficients"

What are the coefficients in the following expression?

-19v +14d -3

Select all that apply.

Check all that apply:

✗ -19v
✗ +14d
✗ v
✗ d
✓ -19
✓ +14
✗ -3

Scaffold:

Let's look at the solution for a problem similar to the one above:

PROBLEM:

What are the coefficients and constants in the following expression?
+2x -3y +5

SOLUTION:

Coefficients are numbers multiplied to variables.
Constants are numbers that stand alone and do not vary.

+2x -3y +5

+2 and -3 are multiplied to variables, which means they are coefficients.
+5 is not multiplied to a variable, which means it does not vary and is therefore a constant.

Multiple choice:

✓ I have read the example and now I am ready to try again.

Scaffold:

Now try the original problem again.
You may look back at the worked example if this helps.

What are the coefficients in the following expression?

-19v +14d -3

Select all that apply.

Check all that apply:

- ✗ -19v
- ✗ +14d
- ✗ v
- ✗ d
- ✓ -19
- ✓ +14
- ✗ -3

Hints:

-19v +14d -3

The variables in this expression are v and d.

-19 and +14 are both multiplied to variables, so they are coefficients.
Select both -19 and +14.

3) Assistment #58276 "58276 - Vocabulary - Like Terms"

Identify the like terms in the following expression:

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pd}%v{d}%v{x} %v{pc}%v{c}

Select all terms that apply.

Check all that apply:

- ✓ %v{pa}%v{a}%v{x}
- ✗ %v{pb}%v{b}%v{y}
- ✓ %v{pd}%v{d}%v{x}
- ✗ %v{pc}%v{c}

Hints:

Like terms are terms that can be combined because they each share a common variable.

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pd}%v{d}%v{x} %v{pc}%v{c}

%v{pa}%v{a}%v{x} and %v{pd}%v{d}%v{x} both share the common variable %v{x}. This means they are like terms that can be combined. Select both %v{pa}%v{a}%v{x} and %v{pd}%v{d}%v{x}.

4) Assistment #59921 "59921 - 58276 - Vocabulary - Like Terms"

Identify the like terms in the following expression:

-9c +2d -16c -15

Select all terms that apply.
Check all that apply:

- ✓ -9c
- ✗ +2d
- ✓ -16c
- ✗ -15

Hints:

Like terms are terms that can be combined because they each share a common variable.

-9c +2d -16c -15

-9c and -16c both share the common variable c. This means they are like terms that can be combined.
Select both -9c and -16c.

5) Assistment #58275 "58275 - Vocabulary - Constants"

What are the constants in the following expression?

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

Select all that apply.
Check all that apply:

- ✗ %v{pa}%v{a}%v{x}
- ✗ %v{pb}%v{b}%v{y}
- ✗ %v{x}
- ✗ %v{y}
- ✗ %v{pa}%v{a}
- ✗ %v{pb}%v{b}
- ✓ %v{pc}%v{c}

Scaffold:

Let's look at the solution for a problem similar to the one above:

PROBLEM:

What are the coefficients and constants in the following expression?
+2x -3y +5

SOLUTION:

Coefficients are numbers multiplied to variables.
Constants are numbers that stand alone and do not vary.

+2x -3y +5

+2 and -3 are multiplied to variables, which means they are coefficients.
+5 is not multiplied to a variable, which means it does not vary and is therefore a constant.

Multiple choice:

✓ I have read the example and now I am ready to try again.

Scaffold:

Now try the original problem again.
You may look back at the worked example if this helps.

What are the constants in the following expression?

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

Select all that apply.

Check all that apply:

✗ %v{pa}%v{a}%v{x}
✗ %v{pa}%v{a}%v{x}
✗ %v{x}
✗ %v{y}
✗ %v{pa}%v{a}
✗ %v{pb}%v{b}
✓ %v{pc}%v{c}

Hints:

%v{pa}%v{a}%v{x} %v{pb}%v{b}%v{y} %v{pc}%v{c}

The variables in this expression are %v{x} and %v{y}.

%v{pc}%v{c} is not multiplied to a variable, so it is a constant.
Select %v{pc}%v{c}.

6) Assistment #59941 "59941 - 58275 - Vocabulary - Constants"

What are the constants in the following expression?

-10z +17h +24

Select all that apply.

Check all that apply:

✗ -10z
✗ +17h
✗ z

✘ h
✘ -10
✘ +17
✓ +24

Scaffold:
Let's look at the solution for a problem similar to the one above:

PROBLEM:

What are the coefficients and constants in the following expression?
+2x -3y +5

SOLUTION:

Coefficients are numbers multiplied to variables.
Constants are numbers that stand alone and do not vary.

+2x -3y +5

+2 and -3 are multiplied to variables, which means they are coefficients.
+5 is not multiplied to a variable, which means it does not vary and is therefore a constant.

Multiple choice:
✓ I have read the example and now I am ready to try again.

Scaffold:
Now try the original problem again.
You may look back at the worked example if this helps.

What are the constants in the following expression?

-10z +17h +24

Select all that apply.

Check all that apply:
✘ -10z
✘ -10z
✘ z
✘ h
✘ -10
✘ +17
✓ +24

Hints:

-10z +17h +24

The variables in this expression are z and h.

+24 is not multiplied to a variable, so it is a constant.
Select +24.

7) Assistment #62323 "62323 - Vocabulary - Trinomial"

Indicate whether the given polynomial is a monomial, binomial, or trinomial:

%v{pa}%v{a}%v{x}$^{\%v\{n\}}$ %v{pb}%v{b}%v{x} %v{pc}%v{c}

Multiple choice:

- ✗ Monomial
- ✗ Binomial
- ✓ Trinomial
- ✗ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y
$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3$-6f
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2$+6r-5
3a-5b+4c

Count the monomials in the given polynomial.

%v{pa}%v{a}%v{x}%v{n} %v{pb}%v{b}%v{x} %v{pc}%v{c} has three monomials:
%v{pa}%v{a}%v{x}%v{n}, %v{pb}%v{b}%v{x}, and %v{pc}%v{c}.
This means it is a trinomial. Select trinomial.

8) Assistment #85756 "85756 - 62323 - Vocabulary - Trinomial"

Indicate whether the given polynomial is a monomial, binomial, or trinomial:

$8i^2 +6i -4$

Multiple choice:

✘ Monomial

✘ Binomial

✓ Trinomial

✘ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y
$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3$-6f
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2$+6r-5
3a-5b+4c

Count the monomials in the given polynomial.

8i2 +6i -4 has three monomials:
8i2, +6i, and -4.
This means it is a trinomial. Select trinomial.

9) Assistment #62324 "62324 - Vocabulary - Binomial"

Indicate whether the given polynomial is a monomial, binomial, or trinomial:

%v{pa}%v{a}%v{x}$^{\%v\{n\}}$ %v{pc}%v{c}

Multiple choice:

✘ Monomial

✓ Binomial
✗ Trinomial
✗ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y
$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3-6f$
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2+6r-5$
3a-5b+4c

Count the monomials in the given polynomial.

%v{pa}%v{a}%v{x}$^{\%v\{n\}}$ %v{pc}%v{c} has two monomials:
%v{pa}%v{a}%v{x}$^{\%v\{n\}}$ and %v{pc}%v{c}.
This means it is a binomial. Select binomial.

10) Assistment #85776 "85776 - 62324 - Vocabulary - Binomial"

Indicate whether the given polynomial is a monomial, binomial, or trinomial:

$-10k^4 -12$

Multiple choice:

✗ Monomial
✓ Binomial
✗ Trinomial
✗ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y

$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3-6f$
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2+6r-5$
3a-5b+4c

Count the monomials in the given polynomial.

$-10k^4$ -12 has two monomials:
$-10k^4$ and -12.
This means it is a binomial. Select binomial.

11) Assistment #62325 "62325 - Vocabulary - Monomial"
Indicate whether the given polynomial is a monomial, binomial, or trinomial:

%v{pa}%v{a}%v{x}^%v{n}
Multiple choice:
✓ Monomial
✗ Binomial
✗ Trinomial
✗ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y
$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3-6f$
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2+6r-5$
3a-5b+4c

Count the monomials in the given polynomial.

%v{pa}%v{a}%v{x}$^{\%v\{n\}}$ is the one and only monomial.
It is a combination of the coefficient %v{pa}%v{a} and the variable %v{x}$^{\%v\{n\}}$
This means it is a monomial. Select monomial.

12) Assistment #85796 "85796 - 62325 - Vocabulary - Monomial"
Indicate whether the given polynomial is a monomial, binomial, or trinomial:

$10x^3$
Multiple choice:
- ✓ Monomial
- ✗ Binomial
- ✗ Trinomial
- ✗ None of the above

Hints:

A monomial is any combination of coeficients and variables.

Examples:
9x
-4y
$-7r^2$
14
z

A binomial is the addition or subtraction of two monomials.

Examples:
6x+4
$13t^3-6f$
-8d+1

A trinomial is the addition or subtraction of three monomials.

Examples:
7x+13r-2
$-5r^2+6r-5$
3a-5b+4c

Count the monomials in the given polynomial.

$10x^3$ is the one and only monomial.
It is a combination of the coefficient 10 and the variable x^3

This means it is a monomial. Select monomial.

13) Assistment #62367 "62367 - Vocabulary - Quadratic"

Identify which of the given equations are quadratic.

There may be more than one right answer. Select all that apply.

Check all that apply:

- ✗ $y = -\%v\{f\}x^3 + \%v\{g\}x + \%v\{h\}$
- ✗ $y = \%v\{e\}x^3 + \%v\{m\}x^2 + \%v\{n\}x + \%v\{p\}$
- ✓ $y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$
- ✓ $y = -\%v\{d\}x^2$
- ✗ $y = \%v\{i\}x + \%v\{j\}$
- ✗ $y = \%v\{k\}x$
- ✗ $y = -\%v\{l\}$
- ✗ None of the above

Hints:

A quadratic equation is a second order equation.
The largest exponent in an equation determines its order.

Examples:
$y = x^3 + 4x^2 + 9x + 8$ is a third order equation.
$y = x^2 + 5x + 12$ is a second order equation.
$y = x + 3$ is a first order equation. (Recall that $x = x^1$)
$y = 4$ is a zero order equation because there are no variables present.

Determine the order of each of the given equations:

$y = -\%v\{f\}x^3 + \%v\{g\}x + \%v\{h\}$ is a third order equation.
$y = \%v\{e\}x^3 + \%v\{m\}x^2 + \%v\{n\}x + \%v\{p\}$ is a third order equation.
$y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$ is a second order equation.
$y = -\%v\{d\}x^2$ is a second order equation.
$y = \%v\{i\}x + \%v\{j\}$ is a first order equation.
$y = \%v\{k\}x$ is a first order equation.
$y = -\%v\{l\}$ is a zero order equation.

$y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$ and $y = -\%v\{d\}x^2$ are second order equations, which means they are quadratic.

Select both

$y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$ and

$y = -\%v\{d\}x^2$.

14) Assistment #85816 "85816 - 62367 - Vocabulary - Quadratic"

Identify which of the given equations are quadratic.

There may be more than one right answer. Select all that apply.

Check all that apply:

- ✗ $y = -2x^3 + 18x + 3$
- ✗ $y = 12x^3 + 16x^2 + 5x + 18$
- ✓ $y = 9x^2 + 14x - 5$
- ✓ $y = -18x^2$
- ✗ $y = 14x + 4$
- ✗ $y = 16x$
- ✗ $y = -8$
- ✗ None of the above

Hints:

A quadratic equation is a second order equation.
The largest exponent in an equation determines its order.

Examples:

$y = x^3 + 4x^2 + 9x + 8$ is a third order equation.
$y = x^2 + 5x + 12$ is a second order equation.
$y = x + 3$ is a first order equation. (Recall that $x = x^1$)
$y = 4$ is a zero order equation because there are no variables present.

Determine the order of each of the given equations:

$y = -2x^3 + 18x + 3$ is a third order equation.
$y = 12x^3 + 16x^2 + 5x + 18$ is a third order equation.
$y = 9x^2 + 14x - 5$ is a second order equation.
$y = -18x^2$ is a second order equation.
$y = 14x + 4$ is a first order equation.
$y = 16x$ is a first order equation.
$y = -8$ is a zero order equation.

$y = 9x^2 + 14x - 5$ and $y = -18x^2$ are second order equations, which means they are quadratic.

Select both

$y = 9x^2 + 14x - 5$ and

$y = -18x^2$.

15) Assistment #62368 "62368 - Vocabulary - Linear"

Identify which of the given equations are linear.

There may be more than one right answer. Select all that apply.

Check all that apply:

- ✗ $y = -\%v\{f\}x^3 + \%v\{g\}x + \%v\{h\}$
- ✗ $y = \%v\{e\}x^3 + \%v\{m\}x^2 + \%v\{n\}x + \%v\{p\}$
- ✗ $y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$

✘ $y = -\%v\{d\}x^2$

✓ $y = \%v\{i\}x + \%v\{j\}$

✓ $y = \%v\{k\}x$

✓ $y = -\%v\{l\}$

✘ None of the above

Hints:

A linear equation is a first order or zero order equation. When graphed, these equations produce lines. The largest exponent in an equation determines its order.

Examples:

$y = x^3 + 4x^2 + 9x + 8$	is a third order equation.
$y = x^2 + 5x + 12$	is a second order equation.
$y = x + 3$	is a first order equation. (Recall that $x = x^1$)
$y = 4$	is a zero order equation because there are no variables present.

Determine the order of each of the given equations:

$y = -\%v\{f\}x^3 + \%v\{g\}x + \%v\{h\}$	is a third order equation.
$y = \%v\{e\}x^3 + \%v\{m\}x^2 + \%v\{n\}x + \%v\{p\}$	is a third order equation.
$y = \%v\{a\}x^2 + \%v\{b\}x - \%v\{c\}$	is a second order equation.
$y = -\%v\{d\}x^2$	is a second order equation.
$y = \%v\{i\}x + \%v\{j\}$	is a first order equation.
$y = \%v\{k\}x$	is a first order equation.
$y = -\%v\{l\}$	is a zero order equation.

$y = \%v\{i\}x + \%v\{j\}$ and $y = \%v\{k\}x$ are first order equations and they are linear

and $y = -\%v\{l\}$ is a zero order equation, this is a special linear equation that is a horizontal line.

Select $\%v\{i\}x + \%v\{j\}$, $y = \%v\{k\}x$, and $y = -\%v\{l\}$.

16) Assistment #85836 "85836 - 62368 - Vocabulary - Linear"

Identify which of the given equations are linear.

There may be more than one right answer. Select all that apply.

Check all that apply:

✘ $y = -8x^3 + 9x + 13$

✘ $y = 9x^3 + 11x^2 + 8x + 16$

✘ $y = 1x^2 + 19x - 13$

✘ $y = -14x^2$

✓ $y = 2x + 9$

✓ $y = 3x$

✓ $y = -6$

✗ None of the above

Hints:

A linear equation is a first order or zero order equation. When graphed, these equations produce lines. The largest exponent in an equation determines its order.

Examples:

$y = x^3 + 4x^2 + 9x + 8$ is a third order equation.

$y = x^2 + 5x + 12$ is a second order equation.

$y = x + 3$ is a first order equation. (Recall that $x = x^1$)

$y = 4$ is a zero order equation because there are no variables present.

Determine the order of each of the given equations:

$y = -8x^3 + 9x + 13$ is a third order equation.

$y = 9x^3 + 11x^2 + 8x + 16$ is a third order equation.

$y = 1x^2 + 19x - 13$ is a second order equation.

$y = -14x^2$ is a second order equation.

$y = 2x + 9$ is a first order equation.

$y = 3x$ is a first order equation.

$y = -6$ is a zero order equation.

$y = 2x + 9$ and $y = 3x$ are first order equations and $y = -6$ is a zero order equation, which means they are linear.

Select $2x + 9$, $y = 3x$, and $y = -6$.

Algebra

Skill

Midpoint

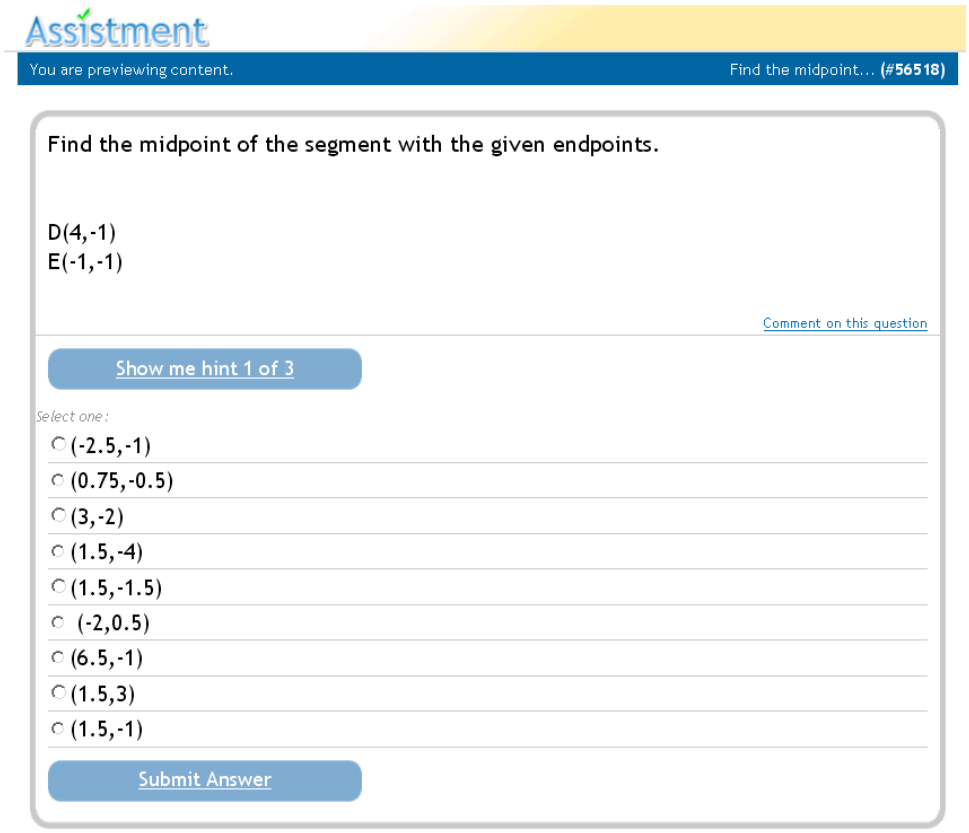
Class

Algebra I

Mastery Problem Set
#
Number to Master
#

Number of Templates
1
Number of Attempts
#

-56518



-The points are randomly generated, from -10 to 10, with 441 total possibilities.

-There are two tutoring strategies that are randomly chosen. Both

are very similar, wit h different examples.

Level 1:

-

Assistment #81989 "81989 - Find the midpoint..."

Find the midpoint of the segment with the given endpoints.

D(-1,8)
E(-7,9)

Multiple choice:

- ✗ (-3,8.5)
- ✗ (-8,17)
- ✗ (-4,34)
- ✗ (-2,4.25)
- ✗ (-4,12.5)
- ✗ (3.5,36)
- ✗ (1,8.5)
- ✗ (-4,12.5)
- ✓ (-4,8.5)

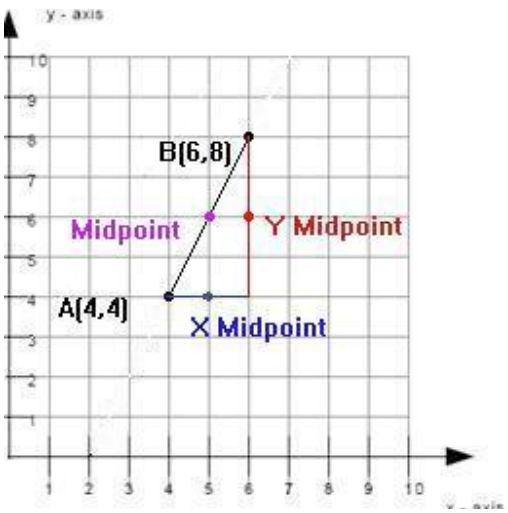
Hints:

The formula for the midpoint is:

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

It may also be helpful for you to use a peice of graph paper and graph the two points and use a graphical method of finding the midpoint.

For example, use graphing, here is how we can find the midpoint of the points A(4,4) and B(6,8).



First we find the X midpoint, by finding the middle of the blue line above, which repesents the change in the X value between the two points. Then we do the same for the red line for the Y value.

Or use the formula
A(4,4)
B(6,8)
The formula to find the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of A and B by doing the following

$$\left(\frac{4+6}{2}, \frac{4+8}{2}\right)$$

$$\left(\frac{10}{2}, \frac{12}{2}\right)$$

(5 , 6)

The midpoint for the example is (5,6).

Now apply that to our points D and E.
D(-1, 8)
E(-7 , 9)

Remember that the formula to find the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of D and E by doing the following

$$\left(\frac{-1+-7}{2}, \frac{8+9}{2}\right)$$

$$\left(\frac{-8}{2}, \frac{17}{2}\right)$$

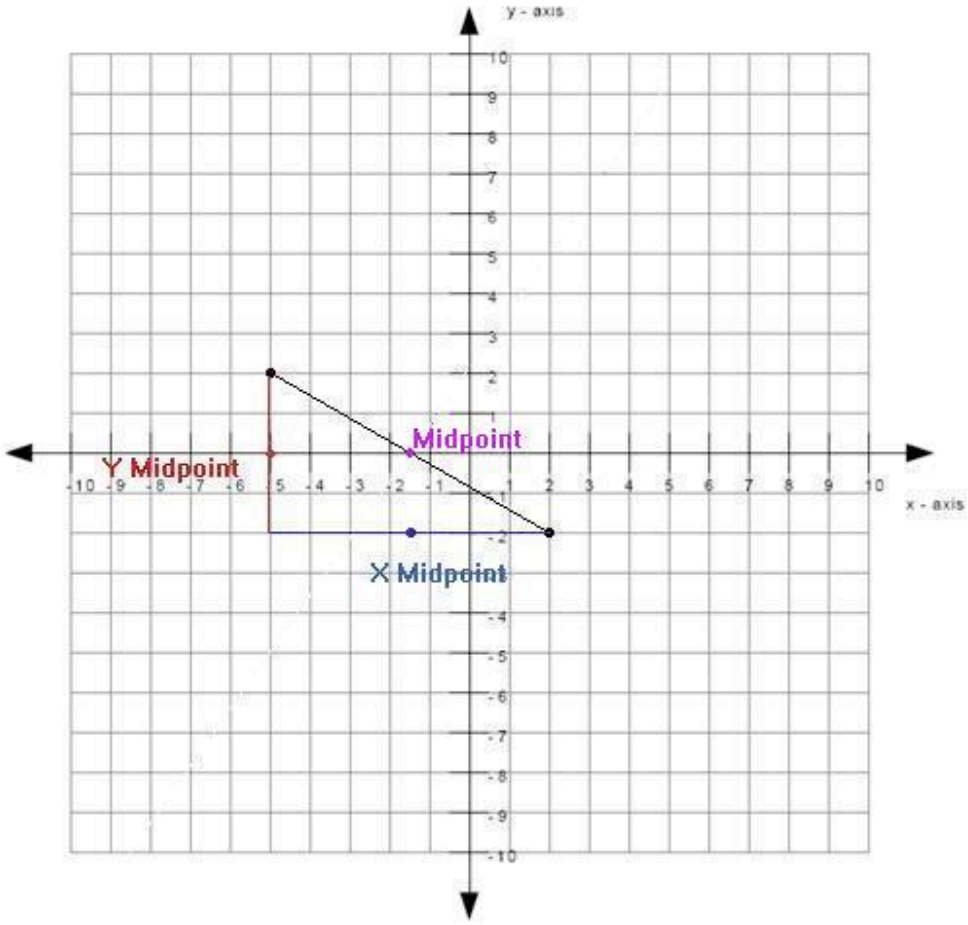
(-4, 8.5)

Choose
(-4, 8.5)

Hints:

It may be helpful for you to use a peice of graph paper and graph the two points and use a graphical method of finding the midpoint.

For example, Use graphing here is how we can find the midpoint of the points A(-5,2) and B(2,-1).



Or use the formula

A(-5,2)
B(2,-2)
The formula for the midpoint is

$$\left(\frac{X_1+X_2}{\quad}, \frac{Y_1+Y_2}{\quad}\right)$$

2 2

We find the midpoint of A and B by doing the following

$$\left(\frac{-5+2}{2}, \frac{2+(-2)}{2}\right)$$

$$\left(\frac{-3}{2}, \frac{0}{2}\right)$$

(-1.5 , 0)

The midpoint for the example is (-1.5,0).

Now apply that to our points D and E.
D(-1, 8)
E(-7 , 9)
Remember that the formula for the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of D and E by doing the following

$$\left(\frac{-1+-7)}{2}, \frac{8+9)}{2}\right)$$

$$\left(\frac{-8}{2}, \frac{17}{2}\right)$$

(-4, 8.5)

Choose
(-4, 8.5)

Assistment #56518 "56518 - Find the midpoint..."

Find the midpoint of the segment with the given endpoints.

D(%v{x1},%v{y1})
E(%v{x2},%v{y2})

Multiple choice:

- ✗ (%v{(x2-x1)/2},%v{(y2+y1)/2})
- ✗ (%v{(x2+x1)},%v{(y2+y1)})
- ✗ (%v{(x2+x1)/2},%v{(y2+y1)*2})
- ✗ (%v{(x2+x1)/4},%v{(y2+y1)/4})
- ✗ (%v{(x2+x1)/2},%v{(y2+2*y1)/2})
- ✗ (%v{(x2*x1)/2},%v{(y2*y1)/2})
- ✗ (%v{5+(x2+x1)/2},%v{(y2+y1)/2})
- ✗ (%v{(x2+x1)/2},%v{4+(y2+y1)/2})
- ✓ (%v{(x2+x1)/2},%v{(y2+y1)/2})

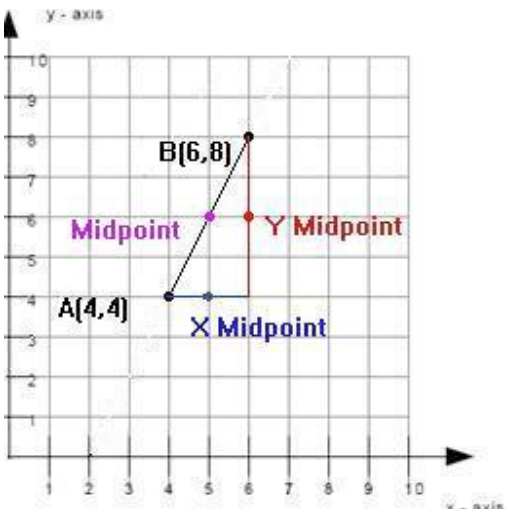
Hints:

The formula for the midpoint is:

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

It may also be helpful for you to use a peice of graph paper and graph the two points and use a graphical method of finding the midpoint.

For example, use graphing, here is how we can find the midpoint of the points A(4,4) and B(6,8).



First we find the X midpoint, by finding the middle of the blue line above, which repesents the change in the X value between the two points. Then we do the same for the red line for the Y value.

Or use the formula
A(4,4)
B(6,8)
The formula to find the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of A and B by doing the following

$$\left(\frac{4+6}{2}, \frac{4+8}{2}\right)$$

$$\left(\frac{10}{2}, \frac{12}{2}\right)$$

(5 , 6)

The midpoint for the example is (5,6).

Now apply that to our points D and E.
D(%v{x1}, %v{y1})
E(%v{x2} , %v{y2})

Remember that the formula to find the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of D and E by doing the following

$$\left(\frac{\%v\{x1\} + \%v\{x2\}}{2}, \frac{\%v\{y1\} + \%v\{y2\}}{2}\right)$$

$$\left(\frac{\%v\{x1 + x2\}}{2}, \frac{\%v\{y1+ y2\}}{2}\right)$$

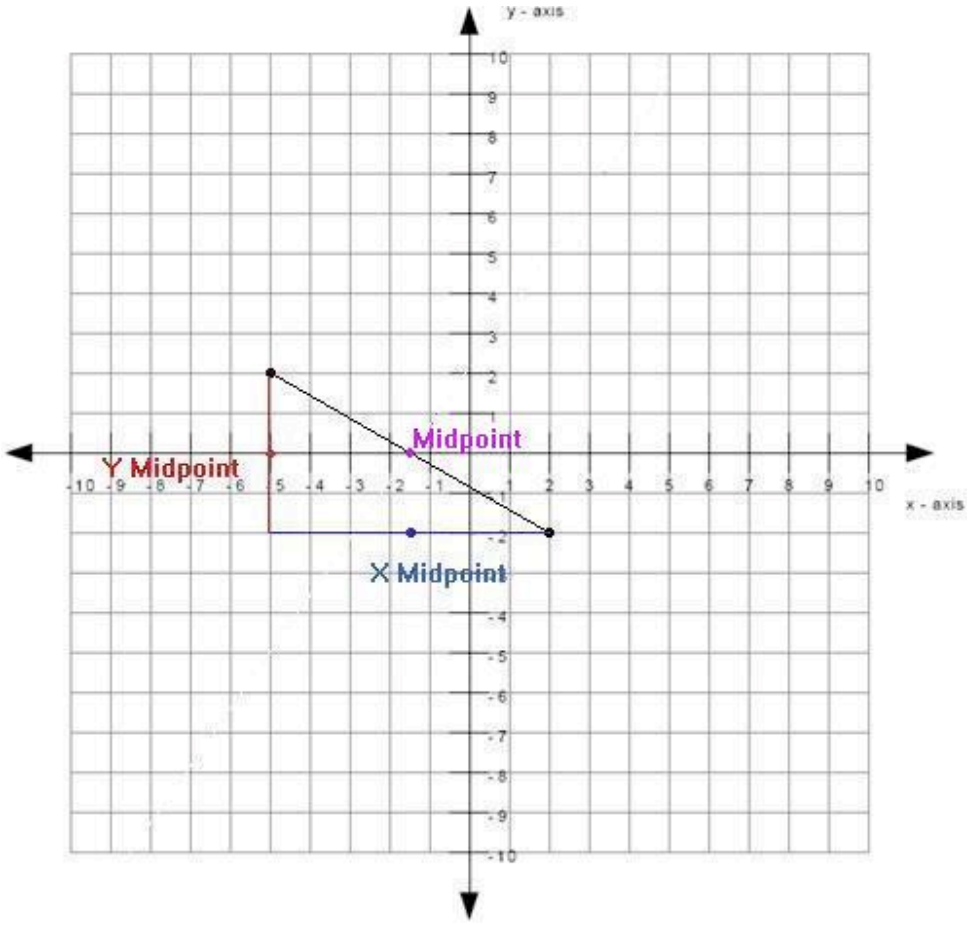
(%v{(x1 + x2)/2}, %v{(y1+ y2)/2})

Choose
(%v{(x1 + x2)/2}, %v{(y1+ y2)/2})

Hints:

It may be helpful for you to use a peice of graph paper and graph the two points and use a graphical method of finding the midpoint.

For example, Use graphing here is how we can find the midpoint of the points A(-5,2) and B(2,-1).



Or use the formula

A(-5,2)
B(2,-2)
The formula for the midpoint is

$$\left(\frac{X_1+X_2}{\quad}, \frac{Y_1+Y_2}{\quad}\right)$$

2 2

We find the midpoint of A and B by doing the following

$$\left(\frac{-5+2}{2}, \frac{2+(-2)}{2}\right)$$

$$\left(\frac{-3}{2}, \frac{0}{2}\right)$$

(-1.5 , 0)

The midpoint for the example is (-1.5,0).

Now apply that to our points D and E.

D(%v{x1}, %v{y1})

E(%v{x2} , %v{y2})

Remember that the formula for the midpoint is

$$\left(\frac{X_1+X_2}{2}, \frac{Y_1+Y_2}{2}\right)$$

We find the midpoint of D and E by doing the following

$$\left(\frac{\%v\{x1\} + \%v\{x2\})}{2}, \frac{\%v\{y1\} + \%v\{y2\})}{2}\right)$$

$$\left(\frac{\%v\{x1 + x2\}}{2}, \frac{\%v\{y1+ y2\}}{2}\right)$$

(%v{(x1 + x2)/2}, %v{(y1+ y2)/2})

Choose

(%v{(x1 + x2)/2}, %v{(y1+ y2)/2})

Algebra

Skill Class

Sine, Cosine and Tangent

Mastery Problem Set
#9971

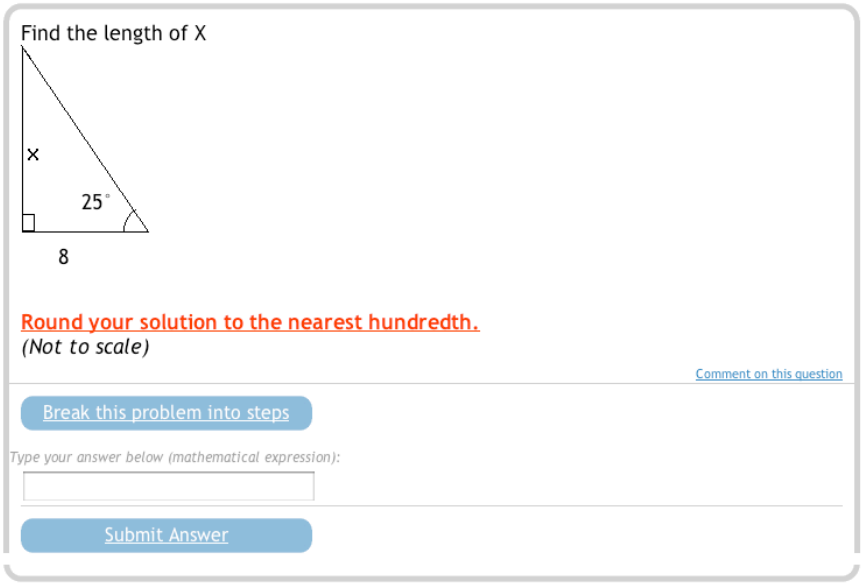
Number of Templates
6

Number to Master

Number of Attempts

Templates

- 57332 – Tangent to find opposite side



  - The angle is between 20 and 40.
  - The given side is between 1 and 21
- 62669 – Tangent to find adjacent side
  - The angle is between 45 and 65.
  - The given side is between 1 and 21

Submitted By: Sam Moniz

- 62965 – Sine to find opposite side
  - The angle is between 40 and 60.
  - The given side is between 1 and 21
- 68664 – Cosine to find adjacent side
  - The angle is between 40 and 60.
  - The given side is between 1 and 21
- 81459 – Cosine to find the hypotenuse
  - The angle is between 45 and 65.
  - The given side is between 1 and 21
- 69232 – Sine to find the hypotenuse
  - The angle is between 45 and 65.
  - The given side is between 1 and 21
  -

Submitted By: Sam Moniz

Assistment #83118 "83118 - Find the length o..."

Find the length of X

7

43°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 4.76

✓ 4.77

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✓ sin

✗ cos

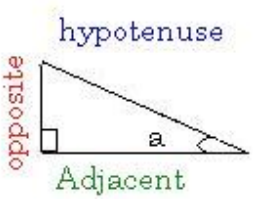
Cosine is adjacent over hypotenuse. We are looking for opposite over the hypotenuse.

✗ tan

Tangent is opposite over adjacent. We are looking for opposite over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

7

43°

Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the hypotenuse.
The function that is of most use to us then is sine.

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Choose sin

Scaffold:

Find the length of X

7

43°

Round your solution to the nearest hundredth.

(Not to scale)

So we need to use the sine function to solve this problem.

$$\sin(\text{Angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, 43

✓ opposite

✘ hypotenuse

We already know the hypotenuse, 7.

Scaffold:

Now, let us return to the original problem again.

Find the length of X

7

43°

Round your solution to two decimal places.

(Not to scale)

Algebra:

✓ 4.77

✓ 4.76

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\sin(\text{angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\sin(43) = \frac{\text{Opposite}}{7}$$

Now, to find sin(angle) usually you
type 43 and then press sin
with your calculator.
Then round it to the hundreth's place.
sin(43)=0.681997896447657 which is rounded to 0.68

$$0.68 = \frac{\text{Opposite}}{7}$$

$$0.68 * 7 = \text{Opposite}$$

$$4.76 = \text{Opposite}$$

Enter : 4.76

Assistment #62965 "62965 - Find the length o..."

Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s*((Math.sin(angle*3.14159/180)*100.0).round)/100.0).round)/100.0}

✓ %v{((100.0*s*Math.sin(angle*3.14159/180)).round)/100.0}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✓ sin

✗ cos

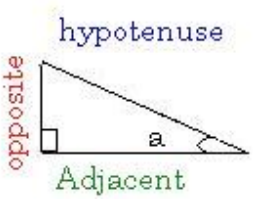
Cosine is adjacent over hypotenuse. We are looking for opposite over the hypotenuse.

✗ tan

Tangent is opposite over adjacent. We are looking for opposite over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{s}

%v{angle}°

Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the hypotenuse.
The function that is of most use to us then is sine.

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Choose sin

Scaffold:
Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

So we need to use the sine function to solve this problem.

$$\sin(\text{Angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, %v{angle}

✓ opposite

✘ hypotenuse

We already know the hypotenuse, %v{s}.

Scaffold:

Now, let us return to the original problem again.

Find the length of X

%v{s}

%v{angle}°

Round your solution to two decimal places.

(Not to scale)

Algebra:

✓ %v{((100.0*s*Math.sin(angle*3.14159/180)).round)/100.0}

✓ %v{((100.0*s*((Math.sin(angle*3.14159/180)*100.0).round)/100.0).round)/100.0}

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\sin(\text{angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\sin(\%v\{\text{angle}\}) = \frac{\text{Opposite}}{\%v\{s\}}$$

Now, to find sin(angle) usually you type %v{angle} and then press sin with your calculator.

Then round it to the hundreth's place.

sin(%v{angle})=%v{Math.sin(angle*3.14159/180)} which is rounded to %v{((Math.sin(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((Math.sin(angle*3.14159/180)*100).round)/100.0\} = \frac{\text{Opposite}}{\%v\{s\}}$$

%v{((Math.sin(angle*3.14159/180)*100).round)/100.0} * %v{s} = Opposite

%v{s*(((Math.sin(angle*3.14159/180)*100).round)/100.0)} = Opposite

Enter : %v{s*(((Math.sin(angle*3.14159/180)*100).round)/100.0)}

Assistment #83148 "83148 - Find the le..."

Find the length of X

12

50°

Round your solution to the nearest hundredth

(Not to scale)

Algebra:

✓ 15.58

✓ 15.66

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✓ sin

✗ cos

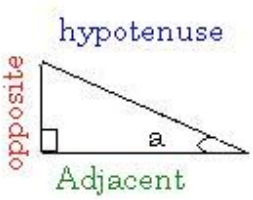
Cosine is adjacent over hypotenuse. We are looking for opposite over the hypotenuse.

✗ tan

Tangent is opposite over the adjacent. We are looking for opposite over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

12

50°

Now, looking at our original problem, we can see that we are trying to find the hypotenuse of the triangle given the angle and the opposite side.
The function that is of most use to us then is sine.

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Choose sin

Scaffold:

Find the length of X

12

50°

(Not to scale)

So we need to use the sine function to solve this problem.

$$\sin(\text{Angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, 50

✘ opposite

We already know the opposite side, 12.

✓ hypotenuse

Scaffold:

Now, let us return to the original problem again.

Find the length of X

12

50°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 15.66

✓ 15.58

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\sin(\text{angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\sin(50) = \frac{12}{\text{Hypotenuse}}$$

Now, to find sin(angle) usually you
type 50 and then press sin
with your calculator.
Then round it to the hundreth's place.
sin(50)=0.766043969314703 which is rounded to 0.77

$$0.77 = \frac{12}{\text{Hypotenuse}}$$

$$0.77 * \text{Hypotenuse} = 12$$

$$\text{Hypotenuse} = 12/0.77$$

Enter : 15.58

Assistment #69232 "69232 - Find the le..."

Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth

(Not to scale)

Algebra:

✓ %v{((100.0*s/(((Math.sin(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

✓ %v{((100.0*s/Math.sin(angle*3.14159/180)).round)/100.0}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✓ sin

✗ cos

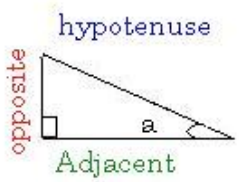
Cosine is adjacent over hypotenuse. We are looking for opposite over the hypotenuse.

✗ tan

Tangent is opposite over the adjacent. We are looking for opposite over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\text{adjacent}$$

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{s}

%v{angle}°

Now, looking at our original problem, we can see that we are trying to find the hypotenuse of the triangle given the angle and the opposite side.
The function that is of most use to us then is sine.

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Choose sin

Scaffold:

Find the length of X

%v{s}

%v{angle}° .

(Not to scale)

So we need to use the sine function to solve this problem.

$$\sin(\text{Angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, %v{angle}

✘ opposite

We already know the opposite side, %v{s}.

✓ hypotenuse

Scaffold:

Now, let us return to the original problem again.

Find the length of X

%v{s}

%v{angle}° .

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s/Math.sin(angle*3.14159/180)).round)/100.0}

✓ %v{((100.0*s/(((Math.sin(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\sin(\text{angle}) = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\sin(\%v\{angle\}) = \frac{\%v\{s\}}{\text{Hypotenuse}}$$

Now, to find sin(angle) usually you type %v{angle} and then press sin with your calculator.

Then round it to the hundreth's place.

sin(%v{angle})=%v{Math.sin(angle*3.14159/180)} which is rounded to %v{((Math.sin(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((Math.sin(angle*3.14159/180)*100).round)/100.0\} = \frac{\%v\{s\}}{\text{Hypotenuse}}$$

$$\%v\{((Math.sin(angle*3.14159/180)*100).round)/100.0\} = \%v\{s\} * \text{Hypotenuse}$$

$$\text{Hypotenuse} = \%v\{s\}/\%v\{((Math.sin(angle*3.14159/180)*100).round)/100.0\}$$

Enter : %v{((100.0*s/(((Math.sin(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Assistment #83140 "83140 - Find the length o..."

Find the length of X

4

50°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 2.56

✓ 2.57

✓ 2.56

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the adjacent over the hypotenuse.

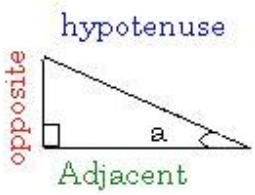
✓ cos

✗ tan

Tangent is opposite over adjacent. We are looking for the adjacent over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

4

50°

Now, looking at our original problem, we can see that we are trying to find the adjacent side of the triangle given the angle and the hypotenuse.
The function that is of most use to us then is cosine.

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Choose cos

Scaffold:
Find the length of X

4

50°

(Not to scale)

So we need to use the cosine function to solve this problem.

$$\cos(\text{Angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, 50

✓ adjacent

✘ hypotenuse

We already know the hypotenuse, 4.

Scaffold:

Now, let us return to the original problem again.
Find the length of X

4

50°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 2.56

✓ 2.57

✓ 2.56

Hints:

Now that we know that we need to use the cos function, let us plug in the values given.

$$\cos(\text{angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\cos(50) = \frac{\text{Adjacent}}{4}$$

Now, to find cos(angle) usually you
type 50 and then press cos
with your calculator.
Then round it to the hundreth's place.
cos(50)=0.642788174344063 which is rounded to 0.64

$$0.64 = \frac{\text{Adjacent}}{4}$$

$$0.64 * 4 = \text{Adjacent}$$

$$2.56 = \text{Adjacent}$$

Enter : 2.56

Assistment #68664 "68664 - Find the length o..."

Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s*((Math.cos(angle*3.14159/180)*100.0).round)/100.0).round)/100.0}

✓ %v{((100.0*s*Math.cos(angle*3.14159/180)).round)/100.0}

✓ %v{s*(((Math.cos(angle*3.14159/180)*100).round)/100.0)}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the adjacent over the hypotenuse.

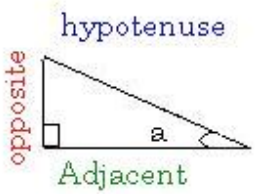
✓ cos

✗ tan

Tangent is opposite over adjacent. We are looking for the adjacent over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{s}

%v{angle}°

Now, looking at our original problem, we can see that we are trying to find the adjacent side of the triangle given the angle and the hypotenuse.
The function that is of most use to us then is cosine.

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Choose cos

Scaffold:
Find the length of X

%v{s}

%v{angle}°

(Not to scale)

So we need to use the cosine function to solve this problem.

$$\cos(\text{Angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

- ✗ angle

  We already know the angle, %v{angle}

- ✓ adjacent

- ✗ hypotenuse

  We already know the hypotenuse, %v{s}.

Scaffold:

Now, let us return to the original problem again.
Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

- ✓ %v{s*(((Math.cos(angle*3.14159/180)*100).round)/100.0)}
- ✓ %v{((100.0*s*Math.cos(angle*3.14159/180)).round)/100.0}
- ✓ %v{((100.0*s*((Math.cos(angle*3.14159/180)*100.0).round)/100.0).round)/100.0}

Hints:

Now that we know that we need to use the cos function, let us plug in the values given.

$$\cos(\text{angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\cos(\%v\{\text{angle}\}) = \frac{\text{Adjacent}}{\%v\{s\}}$$

Now, to find cos(angle) usually you type %v{angle} and then press cos with your calculator.

Then round it to the hundreth's place.

cos(%v{angle})=%v{Math.cos(angle*3.14159/180)} which is rounded to %v{((Math.cos(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((\text{Math.cos(angle*3.14159/180)*100).round})/100.0\} = \frac{\text{Adjacent}}{\%v\{s\}}$$

%v{((Math.cos(angle*3.14159/180)*100).round)/100.0} * %v{s} = Adjacent

%v{s*(((Math.cos(angle*3.14159/180)*100).round)/100.0)} = Adjacent

Enter : %v{s*(((Math.cos(angle*3.14159/180)*100).round)/100.0)}

Assistment #83160 "83160 - Find the le..."

Find the length of X

52°

2

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 3.23

✓ 3.25

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the adjacent over the hypotenuse.

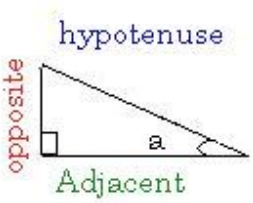
✓ cos

✗ tan

Tangent is opposite over the adjacent. We are looking for adjacent over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

52°

2

Now, looking at our original problem, we can see that we are trying to find the hypotenuse of the triangle given the angle and the adjacent side.
The function that is of most use to us then is cosine.

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Choose cos

Scaffold:

Find the length of X

52°

2

(Not to scale)

So we need to use the cosine function to solve this problem.

$$\cos(\text{Angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✗ angle

We already know the angle, 52

✗ adjacent

We already know the adjacent side, 2.

✓ hypotenuse

Scaffold:

Now, let us return to the original problem again.

Find the length of X

52°

2

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 3.25

✓ 3.23

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\cos(\text{angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\cos(52) = \frac{2}{\text{Hypotenuse}}$$

Now, to find cos(angle) usually you
type 52 and then press cos
with your calculator.
Then round it to the hundreth's place.
cos(52)=0.615662079408695 which is rounded to 0.62

$$0.62 = \frac{2}{\text{Hypotenuse}}$$

$$0.62 * \text{Hypotenuse} = 2$$

$$\text{Hypotenuse} = 2/0.62$$

Enter : 3.23

Assistment #81459 "81459 - Find the le..."

Find the length of X

%v{angle}°

%v{s}

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s/(((Math.cos(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

✓ %v{((100.0*s/Math.cos(angle*3.14159/180)).round)/100.0}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the adjacent over the hypotenuse.

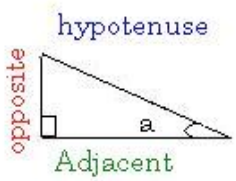
✓ cos

✗ tan

Tangent is opposite over the adjacent. We are looking for adjacent over the hypotenuse.

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

adjacent

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{angle}°

%v{s}

Now, looking at our original problem, we can see that we are trying to find the hypotenuse of the triangle given the angle and the adjacent side.
The function that is of most use to us then is cosine.

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Choose cos

Scaffold:

Find the length of X

%v{angle}°

%v{s}

(Not to scale)

So we need to use the cosine function to solve this problem.

$$\cos(\text{Angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, %v{angle}

✘ adjacent

We already know the adjacent side, %v{s}.

✓ hypotenuse

Scaffold:

Now, let us return to the original problem again.

Find the length of X

%v{angle}°

%v{s}

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s/Math.cos(angle*3.14159/180)).round)/100.0}

✓ %v{((100.0*s/(((Math.cos(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Hints:

Now that we know that we need to use the sin function, let us plug in the values given.

$$\cos(\text{angle}) = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\cos(\%v\{angle\}) = \frac{\%v\{s\}}{\text{Hypotenuse}}$$

Now, to find cos(angle) usually you type %v{angle} and then press cos with your calculator.
Then round it to the hundreth's place.

cos(%v{angle})=%v{Math.cos(angle*3.14159/180)} which is rounded to %v{((Math.cos(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((Math.cos(angle*3.14159/180)*100).round)/100.0\} = \frac{\%v\{s\}}{\text{Hypotenuse}}$$

$$\%v\{((Math.cos(angle*3.14159/180)*100).round)/100.0\} * \text{Hypotenuse} = \%v\{s\}$$

$$\text{Hypotenuse} = \%v\{s\}/\%v\{((Math.cos(angle*3.14159/180)*100).round)/100.0\}$$

Enter : %v{((100.0*s/(((Math.cos(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Assistment #83128 "83128 - Find the l..."

Find the length of X

6

62°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 3.19

✓ 3.19

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the opposite over the adjacent.

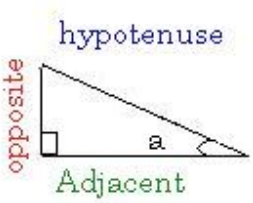
✗ cos

Cosine is Adjacent over hypotenuse. We are looking for opposite over adjacent.

✓ tan

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

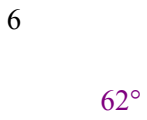
$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$



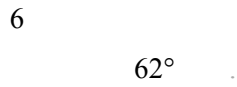
Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the adjacent side.
The function that is of most use to us then is tangent.

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

Choose tan

Scaffold:

Find the length of X



(Not to scale)

So we need to use the tangent function to solve this problem.

$$\tan(\text{Angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

Which of these three are we trying to find?

Multiple choice:

✗ angle

We already know the angle, 62

✗ opposite

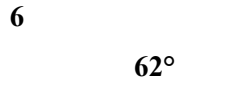
We already know the opposite side, 6.

✓ adjacent

Scaffold:

Now, let us return to the original problem again.

Find the length of X



Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 3.19

Hints:

Now that we know that we need to use the tan function, let us plug in the values given.

$$\tan(\text{angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

$$\tan(62) = \frac{6}{\text{Adjacent}}$$

Now, to find tan(angle) usually you
type 62 and then press tan
with your calculator.
Then round it to the hundreth's place.
tan(62)=1.88072231835007 which is rounded to 1.88

$$1.88 = \frac{6}{\text{Adjacent}}$$

$$1.88 * \text{Adjacent} = 6$$

$$\text{Adjacent} = 6/1.88$$

Enter : 3.19

Assistment #62669 "62669 - Find the l..."

Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s/(((Math.tan(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

✓ %v{((100.0*s/Math.tan(angle*3.14159/180)).round)/100.0}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the opposite over the adjacent.

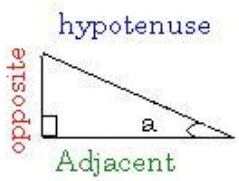
✗ cos

Cosine is Adjacent over hypotenuse. We are looking for opposite over adjacent.

✓ tan

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\frac{\text{adjacent}}{}$$

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{s}

%v{angle}°

Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the adjacent side.
The function that is of most use to us then is tangent.

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

Choose tan

Scaffold:
Find the length of X

%v{s}

%v{angle}°

(Not to scale)

So we need to use the tangent function to solve this problem.

$$\tan(\text{Angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, %v{angle}

✘ opposite

We already know the opposite side, %v{s}.

✓ adjacent

Scaffold:

Now, let us return to the original problem again.

Find the length of X

%v{s}

%v{angle}°

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s/(((Math.tan(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Hints:

Now that we know that we need to use the tan function, let us plug in the values given.

$$\tan(\text{angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

$$\tan(\%v\{angle\}) = \frac{\%v\{s\}}{\text{Adjacent}}$$

Now, to find tan(angle) usually you type %v{angle} and then press tan with your calculator.
Then round it to the hundreth's place.

tan(%v{angle})=%v{Math.tan(angle*3.14159/180)} which is rounded to %v{((Math.tan(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((Math.tan(angle*3.14159/180)*100).round)/100.0\} = \frac{\%v\{s\}}{\text{Adjacent}}$$

$$\%v\{((Math.tan(angle*3.14159/180)*100).round)/100.0\} = \%v\{s\} * \text{Adjacent}$$

$$\text{Adjacent} = \%v\{s\}/\%v\{((Math.tan(angle*3.14159/180)*100).round)/100.0\}$$

Enter : %v{((100.0*s/(((Math.tan(angle*3.14159/180)*100.0).round)/100.0)).round)/100.0}

Assistment #83101 "83101 - Find the length o..."

Find the length of X

30°

10

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 5.8

✓ 5.77

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the opposite over the adjacent.

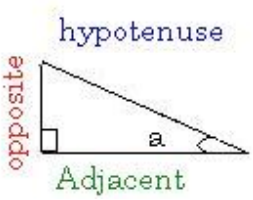
✗ cos

Cosine is Adjacent over hypotenuse. We are looking for opposite over adjacent.

✓ tan

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

30°
10

Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the adjacent side.
The function that is of most use to us then is tangent.

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

Choose tan

Scaffold:
Find the value of X

30°

10

(Not to scale)

So we need to use the tangent function to solve this problem.

$$\tan(\text{Angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

Which of these three are we trying to find?

Multiple choice:

✗ angle

We already know the angle, 30

✓ opposite

✗ adjacent

We already know the adjacent side, 10.

Scaffold:

Now, let us return to the original problem again.

Find the length of X

30°

10

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ 5.8

✔ 5.77

Hints:

Now that we know that we need to use the tan function, let us plug in the values given.

$$\tan(\text{angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

$$\tan(30) = \frac{\text{Opposite}}{10}$$

Now, to find tan(angle) usually you
type 30 and then press tan
with your calculator.
Then round it to the hundreth's place.
tan(30)=0.577349679503156 which is rounded to 0.58

$$0.58 = \frac{\text{Opposite}}{10}$$

$$0.58 * 10 = \text{Opposite}$$

$$5.8 = \text{Opposite}$$

Enter : 5.8

Assistment #57332 "57332 - Find the length o..."

Find the length of X

%v{angle}°

%v{s}

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s*(((Math.tan(angle*3.14159/180)*100).round)/100.0)).round)/100.0}

✓ %v{((100.0*s*Math.tan(angle*3.14159/180)).round)/100.0}

Scaffold:

To do this problem we have to use trigonometry.

Which trigonometric function do we need?

Multiple choice:

✗ sin

Sine is the opposite over the hypotenuse. We are looking for the opposite over the adjacent.

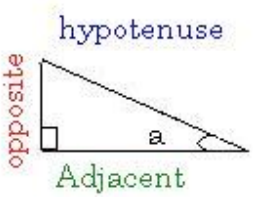
✗ cos

Cosine is Adjacent over hypotenuse. We are looking for opposite over adjacent.

✓ tan

Hints:

Let us recall what each of the three main trigometric functions are.



Sine:

$$\sin(a) = \frac{\text{opposite}}{\text{hypotenuse}}$$

Cosine:

$$\cos(a) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Tangent:

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

%v{angle}°
%v{s}

Now, looking at our original problem, we can see that we are trying to find the opposite side of the triangle given the angle and the adjacent side.
The function that is of most use to us then is tangent.

$$\tan(a) = \frac{\text{opposite}}{\text{adjacent}}$$

Choose tan

Scaffold:
Find the value of X

%v{angle}°

%v{s}

(Not to scale)

So we need to use the tangent function to solve this problem.

$$\tan(\text{Angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

Which of these three are we trying to find?

Multiple choice:

✘ angle

We already know the angle, %v{angle}

✓ opposite

✘ adjacent

We already know the adjacent side, %v{s}.

Scaffold:

Now, let us return to the original problem again.

Find the length of X

%v{angle}°

%v{s}

Round your solution to the nearest hundredth.

(Not to scale)

Algebra:

✓ %v{((100.0*s*(((Math.tan(angle*3.14159/180)*100).round)/100.0)).round)/100.0}

✓ %v{((100.0*s*Math.tan(angle*3.14159/180)).round)/100.0}

Hints:

Now that we know that we need to use the tan function, let us plug in the values given.

$$\tan(\text{angle}) = \frac{\text{Opposite}}{\text{Adjacent}}$$

$$\tan(\%v\{\text{angle}\}) = \frac{\text{Opposite}}{\%v\{s\}}$$

Now, to find tan(angle) usually you type %v{angle} and then press tan with your calculator.
Then round it to the hundreth's place.

tan(%v{angle})=%v{Math.tan(angle*3.14159/180)} which is rounded to %v{((Math.tan(angle*3.14159/180)*100).round)/100.0}

$$\%v\{((Math.tan(angle*3.14159/180)*100).round)/100.0\} = \frac{\text{Opposite}}{\%v\{s\}}$$

%v{((Math.tan(angle*3.14159/180)*100).round)/100.0} * %v{s} = Opposite

%v{s*(((Math.tan(angle*3.14159/180)*100).round)/100.0)} = Opposite

Enter : %v{((100.0*s*(((Math.tan(angle*3.14159/180)*100).round)/100.0)).round)/100.0}