

Wednesday, March 18<sup>th</sup>

Kuta Software - Infinite Pre-Algebra

Name \_\_\_\_\_

### The Distributive Property

Date \_\_\_\_\_ Period \_\_\_\_\_

**Simplify each expression.**

1)  $6(1 - 5m)$

2)  $-2(1 - 5v)$

3)  $3(4 + 3r)$

4)  $3(6r + 8)$

5)  $4(8n + 2)$

6)  $-(-2 - n)$

7)  $-6(7k + 11)$

8)  $-3(7n + 1)$

9)  $-6(1 + 11b)$

10)  $-10(a - 5)$

11)  $-3(1 + 2v)$

12)  $-4(3x + 2)$

13)  $(3 - 7k) \cdot -2$

14)  $-20(8x + 20)$

15)  $(7 + 19b) \cdot -15$

16)  $(x + 1) \cdot 14$

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Exponent Rules (A)

Simplify each expression.

1.  $(7^4)^8$

2.  $3^7 \cdot 3^7$

3.  $\frac{4^3}{4^3}$

4.  $2^6 \cdot 2^5$

5.  $\frac{5^3}{5^8}$

6.  $5^7 \cdot 8^7$

7.  $(2^4)^5$

8.  $\frac{7^8}{7^2}$

9.  $6^8 \cdot 6^0$

10.  $\frac{3^5}{3^5}$

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Infinite Algebra 1

Name \_\_\_\_\_

One-Step Equations

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation.

1)  $26 = 8 + v$

2)  $3 + p = 8$

3)  $15 + b = 23$

4)  $-15 + n = -9$

5)  $m + 4 = -12$

6)  $x - 7 = 13$

7)  $m - 9 = -13$

8)  $p - 6 = -5$

9)  $v - 15 = -27$

10)  $n + 16 = 9$

11)  $-104 = 8x$

12)  $14b = -56$

13)  $-6 = \frac{b}{18}$

14)  $10n = 40$

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$$15) \frac{v}{8} = 2$$

$$16) 16 = \frac{k}{11}$$

$$17) -15x = 0$$

$$18) -17x = -204$$

$$19) 21 = -7n$$

$$20) \frac{m}{4} = -13$$

$$21) -126 = 14k$$

$$22) -143 = -11x$$

$$23) -16 + x = -15$$

$$24) -5 = \frac{a}{18}$$

$$25) -17 = x - 15$$

$$26) n - 8 = -10$$

$$27) \frac{v}{7} = 8$$

$$28) a + 11 = 20$$

$$29) -7 + m = 8$$

$$30) 18 + m = 8$$

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Kuta Software - Infinite Algebra 1

Name \_\_\_\_\_

## Two-Step Equations

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation.

1)  $6 = \frac{a}{4} + 2$

2)  $-6 + \frac{x}{4} = -5$

3)  $9x - 7 = -7$

4)  $0 = 4 + \frac{n}{5}$

5)  $-4 = \frac{r}{20} - 5$

6)  $-1 = \frac{5+x}{6}$

7)  $\frac{v+9}{3} = 8$

8)  $2(n+5) = -2$

9)  $-9x + 1 = -80$

10)  $-6 = \frac{n}{2} - 10$

11)  $-2 = 2 + \frac{v}{4}$

12)  $144 = -12(x+5)$

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13)  $-15 = -4m + 5$

14)  $10 - 6v = -104$

15)  $8n + 7 = 31$

16)  $-9x - 13 = -103$

17)  $\frac{n+5}{-16} = -1$

18)  $-10 = -10 + 7m$

19)  $-10 = 10(k-9)$

20)  $\frac{m}{9} - 1 = -2$

21)  $9 + 9n = 9$

22)  $7(9+k) = 84$

23)  $8 + \frac{b}{-4} = 5$

24)  $-243 = -9(10+x)$

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### Order of Operations

To avoid having different results for the sample problem, mathematicians have agreed on an order of operations when simplifying expressions that contain multiple operations.

1. Perform any operation(s) inside grouping symbols:  
parentheses (), brackets [] above or below a fraction bar
2. Simply any term with exponents
3. Multiply and divide in order from left to right
4. Add and subtract in order from left to right

One easy way to remember the order of operations process is to remember the acronym **PEMDAS** or the old saying "Please Excuse My Dear Aunt Sally."

<b>P</b>	Perform operations in grouping symbols like <b>P</b> arentheses
<b>E</b>	Simplify <b>E</b> xponents
<b>M</b>	Perform <b>M</b> ultiplication and <b>D</b> ivision in order from left to right
<b>D</b>	
<b>A</b>	Perform <b>A</b> ddition and <b>S</b> ubtraction in order from left to right
<b>S</b>	

Example 1	Example 2
$2 - 3^2 + (6+3 \times 2)$	$-7 + 4 + (2^3 - 8 \div -4)$
$2 - 3^2 + (6+6)$	$-7 + 4 + (8 - 8 \div -4)$
$2 - 3^2 + 12$	$-7 + 4 + (8 - -2)$
$2 - 9 + 12$	$-7 + 4 + 10$
$-7 + 12$	$-3 + 10$
$= 5$	$= 7$

### Order of Operations

Evaluate each expression. Remember your order of operations process (PEMDAS).

1. $6 + 4 - 2 \cdot 3 =$	2. $(-2) \cdot 3 + 5 - 7 =$
3. $15 \div 3 \cdot 5 - 4 =$	4. $29 - 3 \cdot 9 + 4 =$
5. $20 - 7 \cdot 4 =$	6. $4 \cdot 9 - 9 + 7 =$

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7. $50 - (17 + 8) =$	8. $(12 - 4) \div 8 =$
9. $12 \cdot 5 + 6 \div 6 =$	10. $18 - 4^2 + 7 =$
11. $3(2 + 7) - 9 \cdot 7 =$	12. $3 + 8 \cdot 2^2 - 4 =$
13. $16 \div 2 \cdot 5 \cdot 3 \div 6 =$	14. $12 \div 3 - 6 \cdot 2 - 8 \div 4 =$
15. $10 \cdot (3 - 6^2) + 8 \div 2 =$	16. $6.9 - 3.2 \cdot (10 \div 5) =$
17. $32 \div [16 \div (8 \div 2)] =$	18. $[10 + (2 \cdot 8)] \div 2 =$
19. $180 \div [2 + (12 \div 3)] =$	20. $\frac{1}{4} [3 \cdot 8] + 2 \cdot (-12) =$
21. $\frac{5 + [30 - (8 - 1)^2]}{11 - 2^2} =$	22. $\frac{3 [10 - (27 \div 9)]}{4 - 7} =$
23. $5(14 - 39 \div 3) + 4 \cdot \frac{1}{4} =$	24. $[8 \cdot 2 - (3 + 9)] + [8 - 2 \cdot 3] =$
25. $162 + [6(7 - 4)^2] \div 3 =$	

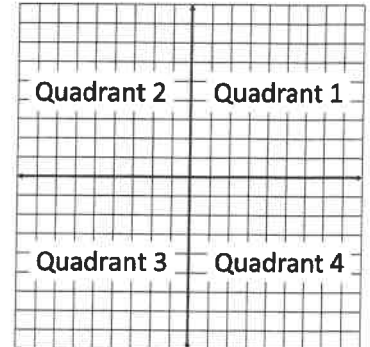


## Graphing

Points in a plane are named using two numbers, called a coordinate pair. The first number is called the x-coordinate. The x-coordinate is positive if the point is to the right of the origin and negative if the point is to the left of the origin. The second number is called the y-coordinate. The y-coordinate is positive if the point is above the origin and negative if the point is below the origin.

The x-y plane is divided into four quadrants (four sections) as described below.

- All points in Quadrant 1 have a positive x coordinate and a positive y coordinate (+x, +y).
- All points in Quadrant 2 have a negative x coordinate and a positive y coordinate (-x, +y).
- All points in Quadrant 3 have a negative x coordinate and a negative y coordinate (-x, -y).
- All points in Quadrant 4 have a positive x coordinate and a negative y coordinate (+x, -y).

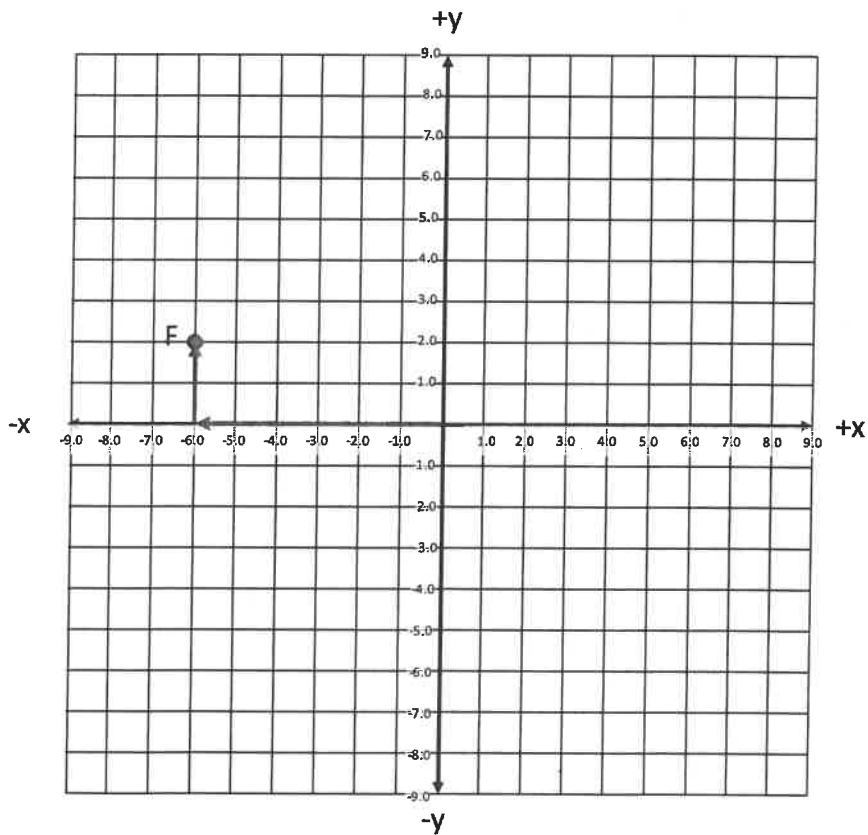


**\* Plot each point on the graph below.**

Remember, coordinate pairs are labeled (x,y).

**\* Label each point on the graph with the letter given.**

1. A (3,4)
  2. B (4,0)
  3. C (-4,2)
  4. D (-3,-1)
  5. E (0,7)
- Example. F (-6,2)



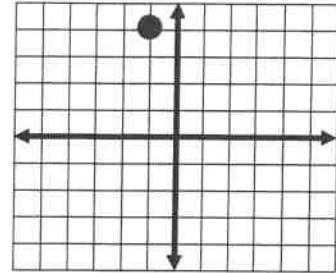
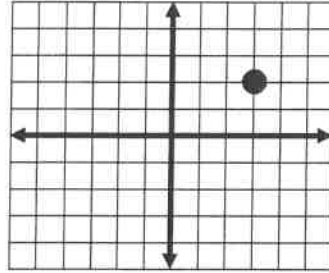
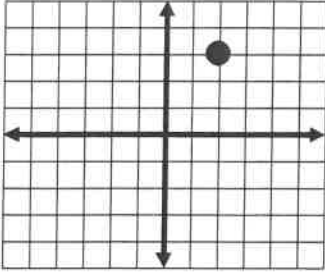
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Determine the coordinates for each point below:

Example: (2,3)

6. ( , )

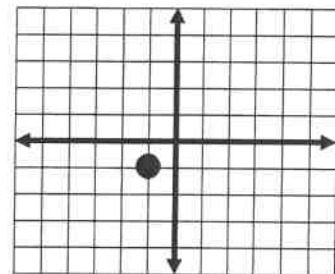
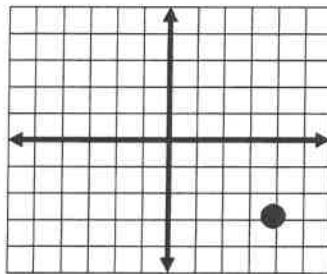
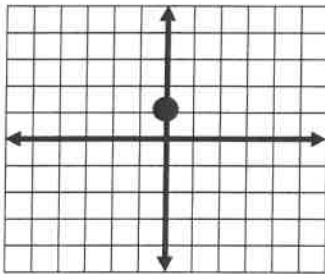
7. ( , )



8. ( , )

9. ( , )

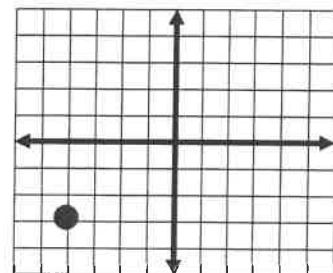
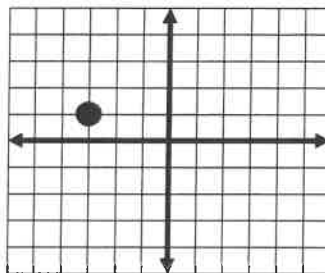
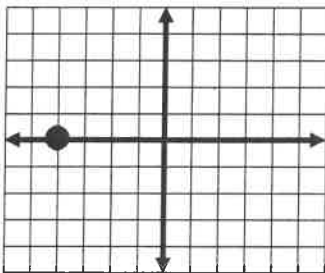
10. ( , )



11. ( , )

12. ( , )

13. ( , )



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Factoring Quadratic Expressions (A)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Factor each expression.

1.  $x^2 - 4x - 45$

11.  $x^2 - 9x + 8$

2.  $x^2 - 5x - 6$

12.  $x^2 + x - 42$

3.  $x^2 - 17x + 72$

13.  $x^2 - x - 72$

4.  $x^2 - 36$

14.  $x^2 + 2x - 63$

5.  $x^2 + 7x - 8$

15.  $x^2 + 13x + 40$

6.  $x^2 - 3x - 54$

16.  $x^2 - 2x - 8$

7.  $x^2 + 3x + 2$

17.  $x^2 + x - 6$

8.  $x^2 + 3x - 18$

18.  $x^2 - 4x + 3$

9.  $x^2 + 17x + 72$

19.  $x^2 + 4x - 5$

10.  $x^2 + 10x + 24$

20.  $x^2 - 2x - 35$



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Complete the following tables. Then graph the data on the grid provided.

*\* Use Desmos!*

**Problem**

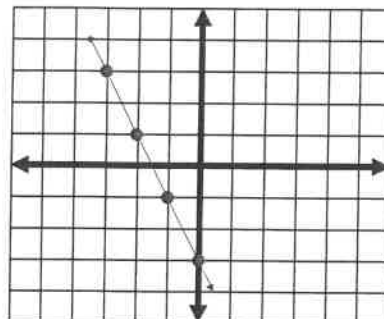
**Work**

**Graph**

$y = -2x - 3$

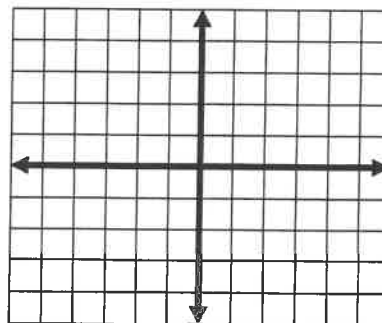
X	Y
-3	3
-2	1
-1	-1
0	-3

$x = -3$   
 $y = -2(-3) - 3 = 6 - 3 = 3$   
therefore  $(x,y) = (-3,3)$   
 $x = -2$   
 $y = -2(-2) - 3 = 4 - 3 = 1$   
therefore  $(x,y) = (-2,1)$   
 $x = -1$   
 $y = -2(-1) - 3 = 2 - 3 = -1$   
therefore  $(x,y) = (-1,-1)$   
 $x = 0$   
 $y = -2(0) - 3 = 0 - 3 = -3$   
therefore  $(x,y) = (0,-3)$



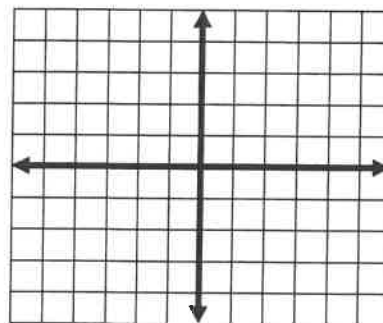
14.  $y = x + 2$

X	Y
0	
1	
2	



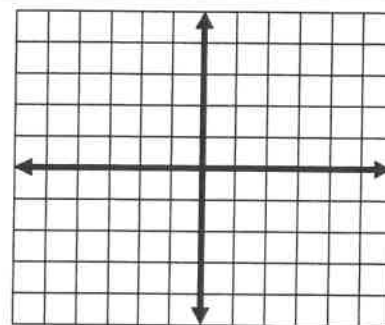
15.  $y = 2x$

X	Y
0	
1	
2	
3	



16.  $y = -x$

X	Y
-3	
-1	
1	
3	



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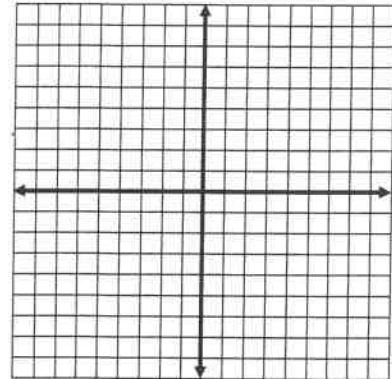
**Problem**

**Work**

**Graph**

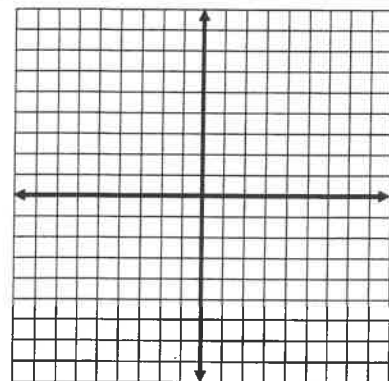
17.  $y = 2x - 3$

X	Y
0	
1	
2	
3	



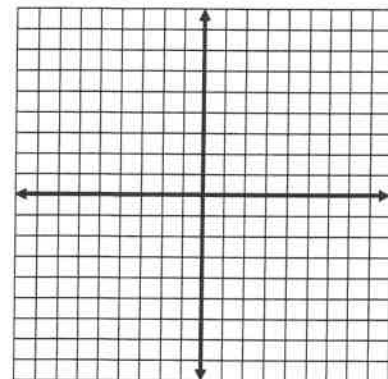
18.  $y = \frac{1}{2}x + 1$

X	Y
0	
2	
4	
6	



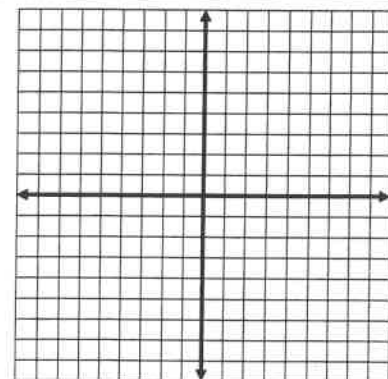
19.  $y = \frac{3}{2}x - 1$

X	Y
-2	
0	
2	



20.  $y = -\frac{2}{3}x + 1$

X	Y
-3	
0	
3	



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### Combining Like Terms

What is a <i>term</i> ?	The parts of an algebraic expression that are separated by an addition or subtraction sign are called <i>terms</i> .
What are <i>like terms</i> ?	Terms with the same variable factors are called <i>like terms</i> . 2n and 3n are <i>like terms</i> , but 4x and 3y are <u>NOT like terms</u> because their variable factors x and y are different.

To simplify an expression, you must combine the *like terms*.

**Practice.** Simplify each expression.

1. $6n + 5n$	2. $25b + 15b$
3. $37z + 4z$	4. $x - 5x$
5. $3n + 1 - 2n + 8$	6. $4f + 5f - 6 + 8$
7. $7t + 9 - 4t + 3$	8. $2k + 4 - 8k - 1$
9. $4r + 3r + 6y - 2y$	10. $8g + 9h - 4g - 5h$
11. $2m + 3n - 4m + 5n$	12. $a + 5b - 2a + 9b$

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Evaluate each expression given that:  $x = 5$   $y = -4$   $z = 6$

Expression	Substitute values and Simplify	Answer
9. $5x - (y + 2z)$		
10. $\frac{xy}{2}$		
11. $x^2 + y^2 + z^2$		
12. $2x(y + z)$		
13. $5z + (y - x)$		
14. $2x^2 + 3$		
15. $4x + 2y - z$		
16. $\frac{yz}{2}$		