

Algebra

EOC



Review

Walla Walla High School

Formulas You Should Know Before Taking the End of Course Algebra Exam

Slope-Intercept Form

$$y = mx + b$$

Standard Form

$$Ax + By = C$$

Point-Slope Form

$$y - y_1 = m(x - x_1)$$

Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Area of a Rectangle

$$A = lw$$

Perimeter of a Rectangle

$$P = 2l + 2w$$

Area of a Triangle

$$A = \frac{1}{2}bh \text{ or } A = \frac{bh}{2}$$

The Exponential Growth and Decay Formula

$$y = a(1 + r)^t$$

The Arithmetic Sequence Formula

$$a_n = a_1 + d(n - 1)$$

The Geometric Sequence Formula

$$a_n = a_1 r^{n-1}$$

Formulas You Should Know How to Use Before Taking the End of Course Algebra Exam

Standard Form of a Quadratic Equation

$$ax^2 + bx + c = 0$$

in order to find the values for **a**, **b**, and **c** to use in

The Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The Compound Interest Formula

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

EOC Review #1

Date_____ Period_____

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Solve each equation.

1) $-6x + 3 = 63$

2) $-10 + 6k = -40$

3) $-x + 2 = -1$

4) $-8a - 4 = -28$

5) $1 + \frac{x}{8} = 2$

6) $\frac{x}{4} - 2 = -3$

7) $\frac{8 + a}{5} = 5$

8) $\frac{n - 3}{4} = -1$

9) $\frac{2 + p}{4} = -1$

10) $\frac{x - 3}{6} = -2$

$$11) -63 = 9 - 9b$$

$$12) 2(-8 + 3p) = 26$$

$$13) 60 = 4 + 2(5x + 3)$$

$$14) -(a + 1) = 2$$

$$15) 6 = -(1 + 7x)$$

$$16) -6(1 + k) = -30$$

$$17) 5 + 4(6x + 6) = 6 + x$$

$$18) 32 - 4r = 8(7r + 4)$$

$$19) -4(p - 7) = -4p + 25$$

$$20) 2(1 - x) = 2 - 2x$$

Answers to EOC Review #1

- | | | | |
|--|--------------|------------------|-------------|
| 1) $\{-10\}$ | 2) $\{-5\}$ | 3) $\{3\}$ | 4) $\{3\}$ |
| 5) $\{8\}$ | 6) $\{-4\}$ | 7) $\{17\}$ | 8) $\{-1\}$ |
| 9) $\{-6\}$ | 10) $\{-9\}$ | 11) $\{8\}$ | 12) $\{7\}$ |
| 13) $\{5\}$ | 14) $\{-3\}$ | 15) $\{-1\}$ | 16) $\{4\}$ |
| 17) $\{-1\}$ | 18) $\{0\}$ | 19) No solution. | |
| 20) $\{ \text{ All real numbers. } \}$ | | | |

1. The formula $P = 2l + 2w$ relates the perimeter P of a rectangle to its length l and width w . Solve this formula for w .

2. The formula $a = \frac{v_f - v_i}{t}$ is used to find an object's acceleration given initial velocity v_i , final velocity v_f , and time t . Solve this formula for v_f .

Solve each literal equation for the variable indicated.

3. $-3f = g$ for f

4. $12 = a + 5b$ for a

5. $3x - 7y = z$ for x

6. $5h - g = jk$ for h

7. $\frac{r}{s} = t - 9$ for r

8. $\frac{m+3}{n} = p$ for n

Answer each of the following.

9. The formula $F = ma$ relates the force F exerted on an object, to the object's mass m , and acceleration a .

- a. Solve the formula $F = ma$ for a .

- b. Suppose a shot-putter exerts a force of $123.5 \text{ kg} \cdot \text{m/s}^2$ on a shot that has a mass of 6.5 kg . What is the rate of acceleration of the shot? (The answer will be in m/s^2 .)

10. The formula for the area of a triangle is $A = \frac{1}{2}bh$, where b represents the length of the base and h represents the height.

- a. Solve the formula $A = \frac{1}{2}bh$ for b .

- b. If a triangle has an area of 192 mm^2 , and the height measures 12 mm , what is the measure of the base?

Solve each equation for y

11. $8x + 2y = 6$

12. $3y = x + 6$

13. $22 - 2y = 7 - 5y$

14. $3x + 2y = 5(x + 4)$

15. $3y - 5x + 3 = 2y + 9$

16. $\frac{1}{2}y - x = 12$

11. $y - 3 = 2(x + 9)$

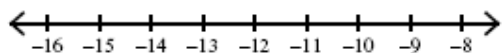
12. $y - 7 = \frac{1}{2}(5x - 8)$

17. $y - 12 + 3x = 5(x - 4)$

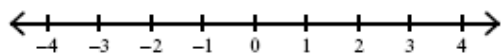
18. $\frac{3}{2}(y + 6x) = 12$

Solve each inequality and graph its solution.

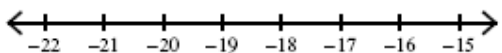
1) $-6a < 66$



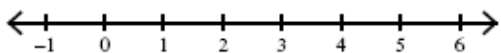
2) $15n > 15$



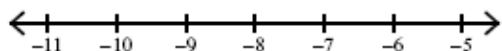
3) $-3v + 5 < 59$



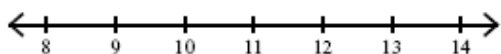
4) $7x - 4 \geq 10$



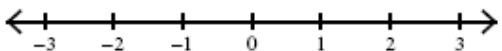
5) $\frac{x-6}{2} \leq -7$



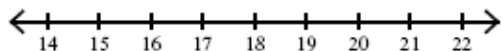
6) $-6n + 7 \leq -53$



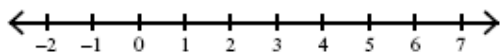
7) $-14 > -10 + 4k$



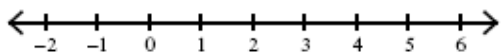
8) $7 + 2p > 45$



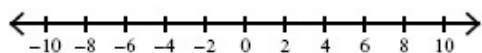
9) $-10 < -2b - 3b$



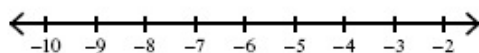
10) $-19 \leq -3 - 7n - n$



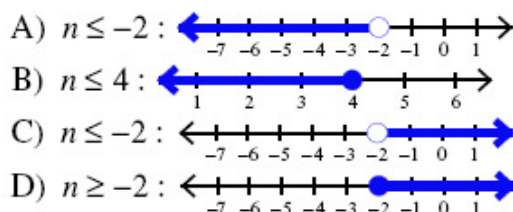
11) $3v - 3v > 0$



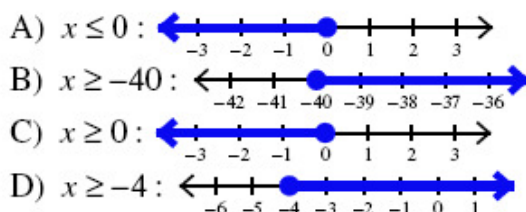
12) $1 + 4x - 2x \geq -11$



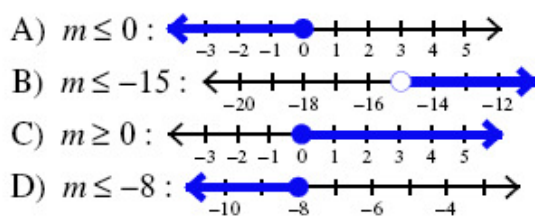
13) $-7(-3n + 7) \leq 35$



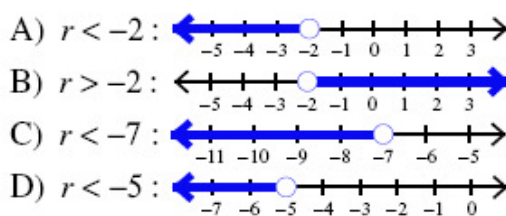
14) $8 \leq -4(-2 + 5x)$



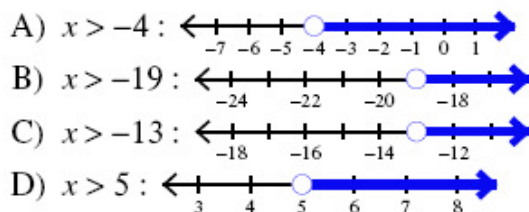
15) $56 \leq 7(8m + 8)$



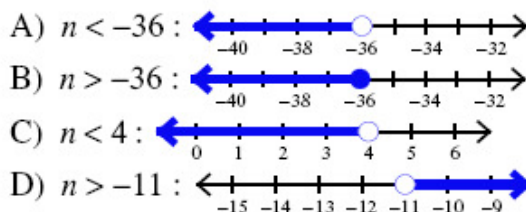
16) $-57 > 5r + 4(r - 3)$



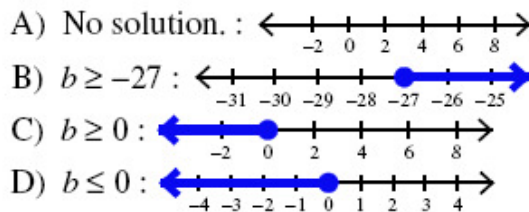
17) $18 < -(-4x + 2)$



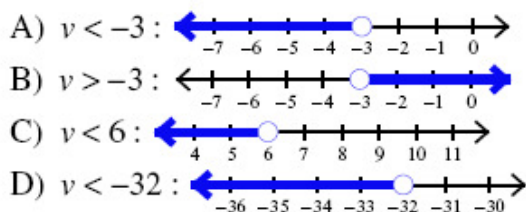
18) $-3(7 + 4n) > -69$



19) $-6 \leq -6(1 + 5b)$



20) $7(5v + 7) > -56$



Algebra

Period_____

Solve each equation.

1) $|x + 8| = 5$

2) $|x - 1| = 1$

3) $|k| - 2 = 8$

4) $|a| - 5 = 1$

5) $|-8x| + 10 = 18$

6) $-6|7p| = -42$

7) $\left|\frac{n}{6}\right| - 5 = -4$

8) $-8\left|\frac{m}{9}\right| = -8$

9) $|-6b| - 8 = -2$

10) $|-10 + x| - 2 = 15$

11) $5|5 + n| + 8 = 28$

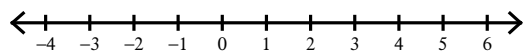
12) $-3|b + 10| + 7 = -26$

13) $|x - 10| + 6 = 11$

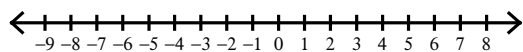
14) $2|v - 4| + 3 = 13$

Solve each inequality and graph its solution.

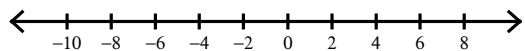
15) $|10a| < 30$



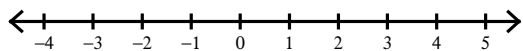
16) $|4n| > 20$



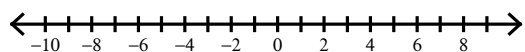
17) $-6\left|\frac{x}{9}\right| \leq -4$



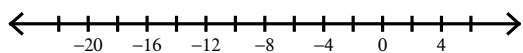
18) $\left|\frac{k}{5}\right| - 9 > -11$



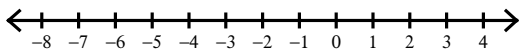
19) $5\left|\frac{x}{6}\right| + 1 \geq 6$



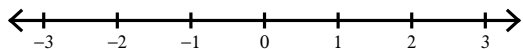
20) $6|n + 9| - 3 \geq 63$



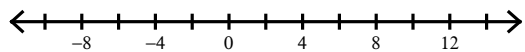
21) $-1 - |-4k - 3| \leq -10$



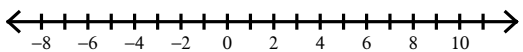
22) $1 + 5|-3 - 9p| \leq 76$



23) $4 + 5|3n - 4| > 119$



24) $-3|6 - 4x| + 3 \geq -99$



Answers to Algebra

1) $\{-3, -13\}$

2) $\{2, 0\}$

3) $\{10, -10\}$

4) $\{6, -6\}$

5) $\{-1, 1\}$

6) $\{1, -1\}$

7) $\{6, -6\}$

8) $\{9, -9\}$

9) $\{-1, 1\}$

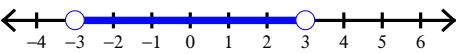
10) $\{27, -7\}$

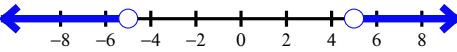
11) $\{-1, -9\}$

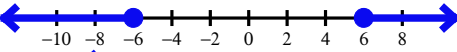
12) $\{1, -21\}$

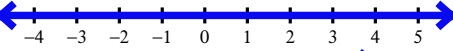
13) $\{15, 5\}$

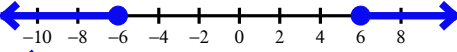
14) $\{9, -1\}$

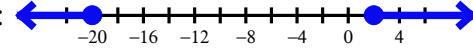
15) $-3 < a < 3$: A number line from -4 to 6 with tick marks every 1 unit. Open circles are placed at -3 and 3, and the line segment between them is shaded blue.

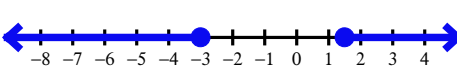
16) $n > 5$ or $n < -5$: A number line from -8 to 8 with tick marks every 2 units. Open circles are placed at -5 and 5, and the regions to the left of -5 and to the right of 5 are shaded blue.

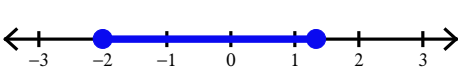
17) $x \geq 6$ or $x \leq -6$: A number line from -10 to 8 with tick marks every 2 units. Closed circles are placed at -6 and 6, and the regions to the left of -6 and to the right of 6 are shaded blue.

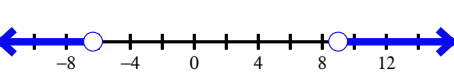
18) { All real numbers. } : A number line from -4 to 5 with tick marks every 1 unit. The entire line is shaded blue with arrows at both ends.

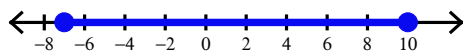
19) $x \geq 6$ or $x \leq -6$: A number line from -10 to 8 with tick marks every 2 units. Closed circles are placed at -6 and 6, and the regions to the left of -6 and to the right of 6 are shaded blue.

20) $n \geq 2$ or $n \leq -20$: A number line from -20 to 4 with tick marks every 4 units. Closed circles are placed at -20 and 2, and the regions to the left of -20 and to the right of 2 are shaded blue.

21) $k \leq -3$ or $k \geq \frac{3}{2}$: A number line from -8 to 4 with tick marks every 1 unit. Closed circles are placed at -3 and 1.5, and the regions to the left of -3 and to the right of 1.5 are shaded blue.

22) $-2 \leq p \leq \frac{4}{3}$: A number line from -3 to 3 with tick marks every 1 unit. Closed circles are placed at -2 and 1.33, and the region between them is shaded blue.

23) $n > 9$ or $n < -\frac{19}{3}$: A number line from -8 to 12 with tick marks every 4 units. Open circles are placed at -6.33 and 9, and the regions to the left of -6.33 and to the right of 9 are shaded blue.

24) $-7 \leq x \leq 10$: A number line from -8 to 10 with tick marks every 2 units. Closed circles are placed at -7 and 10, and the region between them is shaded blue.

EOC Review 5 Linear Equations

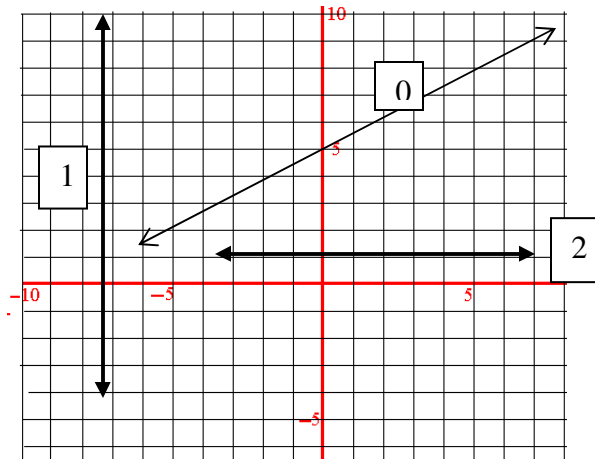
Name _____

Period _____

Page 1 - Slope

Find the slope of the following lines. If the slope is undefined write “undefined”.

Make sure all slopes are in simplest form.



0. $m =$ _____

1. $m =$ _____

2. $m =$ _____

Find the slope of the lines that pass through the following pairs of points.

3. $(5, -4), (-2, 10)$

4. $(5, 3), (8, -6)$

3. $m =$ _____

4. $m =$ _____

5. $(2, 7), (2, 13)$

6. $(-2, 6), (-18, 6)$

5. $m =$ _____

6. $m =$ _____

Find the slope of the lines defined by the following equations.

7. $y = 488x - 257$

8. $5x - 3y = 48$

7. $m =$ _____

8. $m =$ _____

9. $y = -4x + 4$

10. $2y = 2x - 15$

9. $m =$ _____

10. $m =$ _____

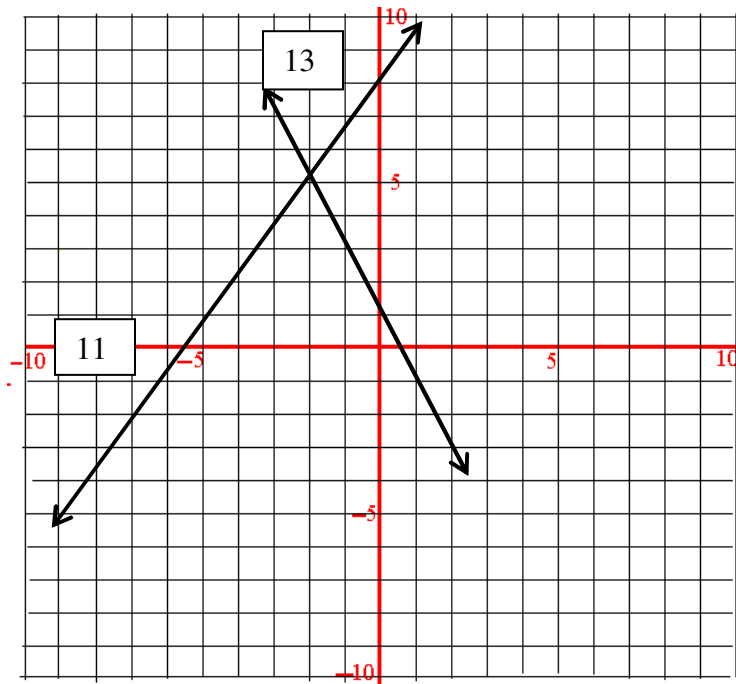
page 2. Slope intercept form.

All answers on this page should be the equation of a line in slope intercept form.

Find an equation in slope intercept form ($y = mx + b$) for the lines on the graph below.

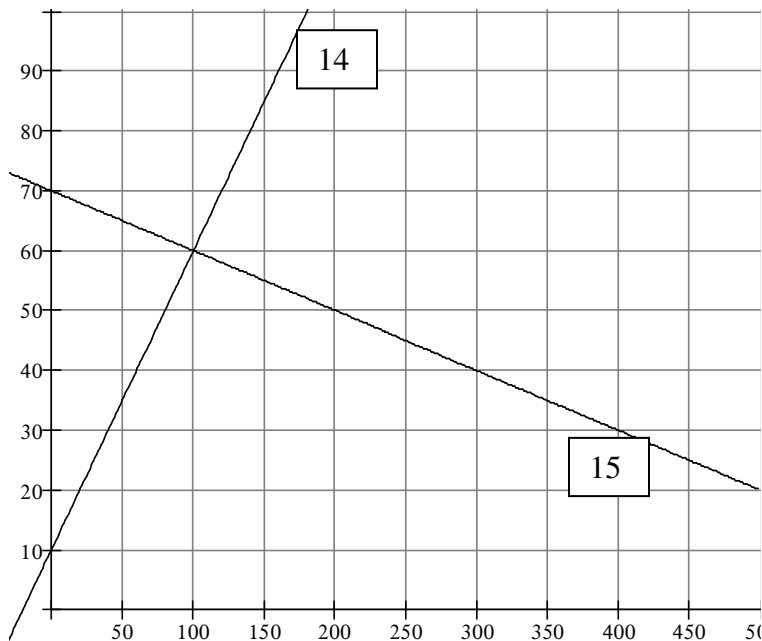
11. _____

13. _____



14. _____

15. _____



Write the slope intercept form of the line with the given information.

16) $m = \frac{1}{2}$, $b = -6$

17) $m = 5$, $b = 2$

16) _____

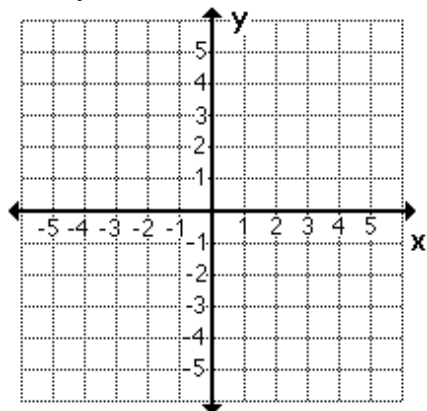
17) _____

18) slope is 12, y intercept is 7

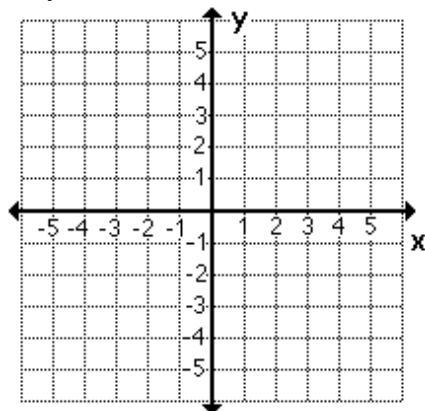
18) _____

Page 3 graphing. Graph the following lines

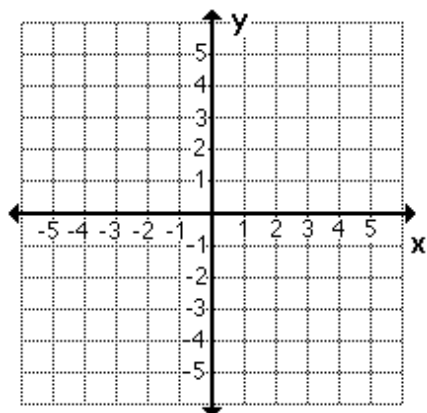
19) $y = 2x - 3$



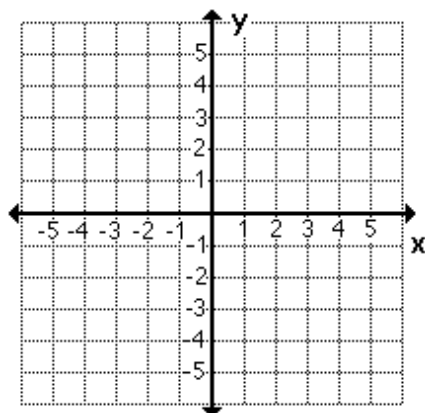
20) $6x + 3y = 18$



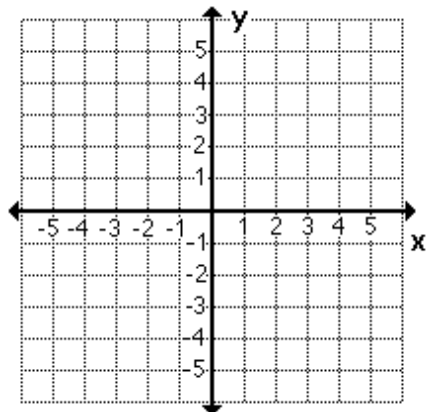
21) $y = \frac{1}{3}x - 5$



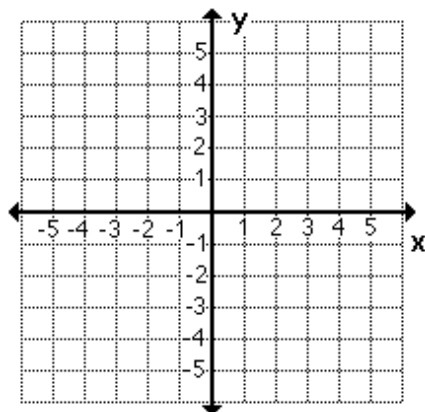
22) $x = 4$



23) Passes through $(-4, 2)$, $m = 2$



24) passes through $(4, 3)$ and $(-2, 6)$



Point Slope Equation

For each question:

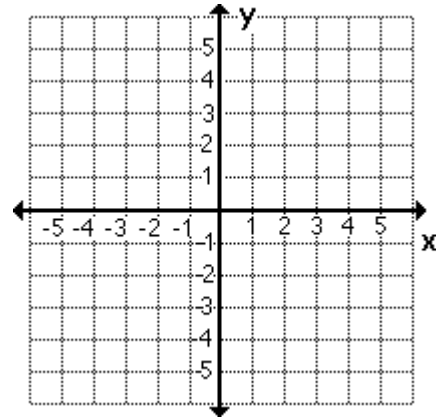
Substitute the needed information into the point slope form of a linear equation.

Solve for y (show your work)

Check your answer by plotting the line for your equation and any points you were given.

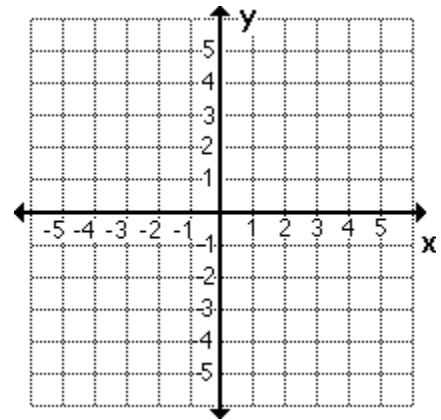
1. slope = -2 Goes through point (-1,3)

$$y = \underline{\hspace{2cm}}$$



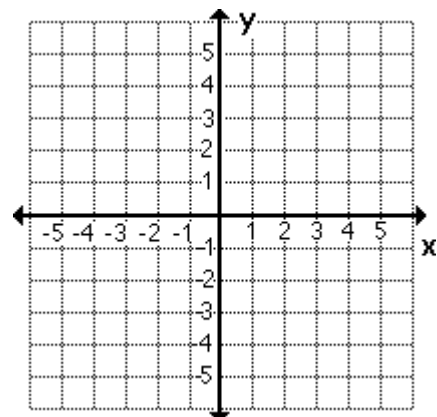
2. Goes through points: (4, -2) and (-4, 2)

$$y = \underline{\hspace{2cm}}$$



3. parallel to $y = 3x - 5$ Goes through point (2,3)

$$y = \underline{\hspace{2cm}}$$



4. Which equation is perpendicular to $y = 2x - 3$

- a. $y = 2x + \frac{1}{3}$
- b. $y = -2x - 7$
- c. $y = \frac{1}{2}x - 3$
- d. $y = \frac{-1}{2}x - 8$

the equation for line one is:

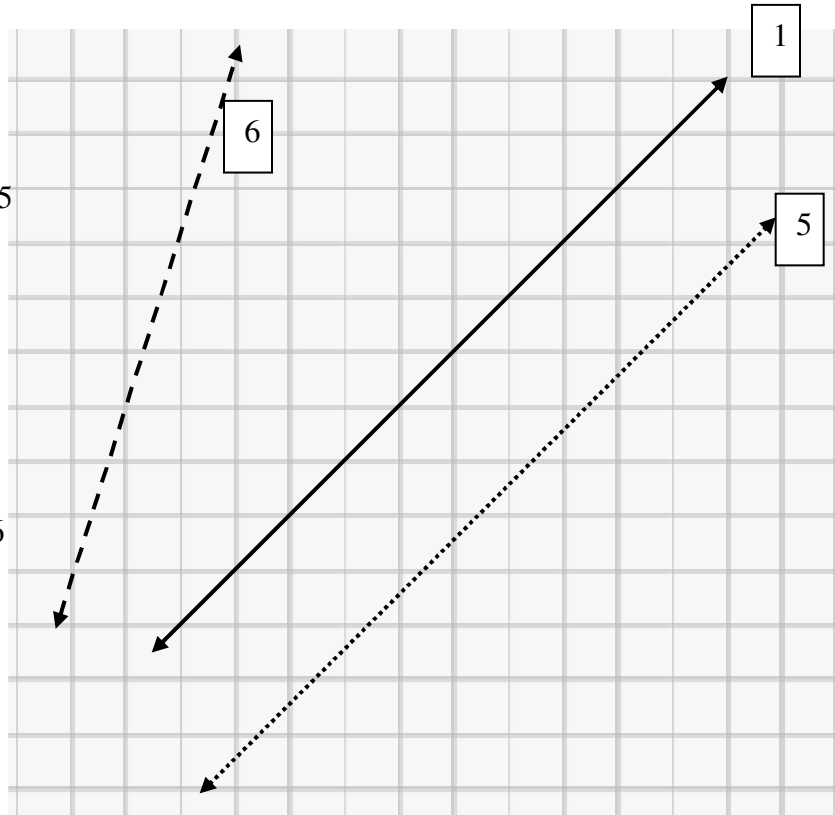
$y = x$.

5. Which is the equation for line #5

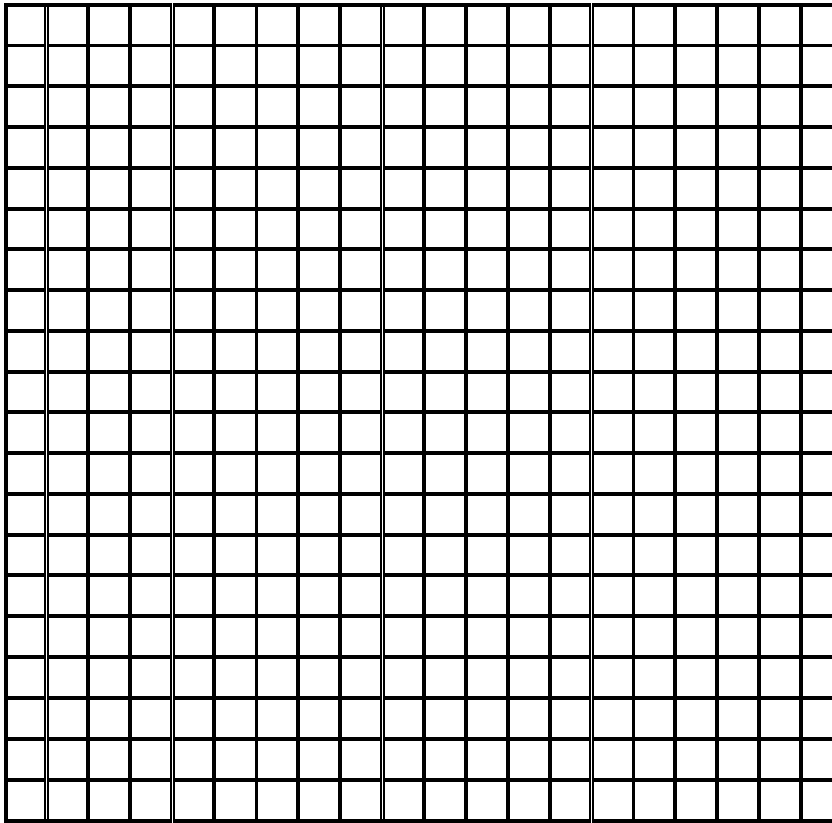
- a. $y = x + 3$
- b. $y = x - 3$
- c. $y = 3x$
- d. $y = \frac{1}{3}x$

6. Which is the equation for line #6

- a. $y = x + 3$
- b. $y = x - 3$
- c. $y = 3x$
- d. $y = \frac{1}{3}x$



- Graph the data set
- Draw a best fit line.



Height of tomato plants	
Time after planting(days)	height (inches)
5	18
10	20
15	22
25	28
40	35
50	39
60	45
75	53
100	65

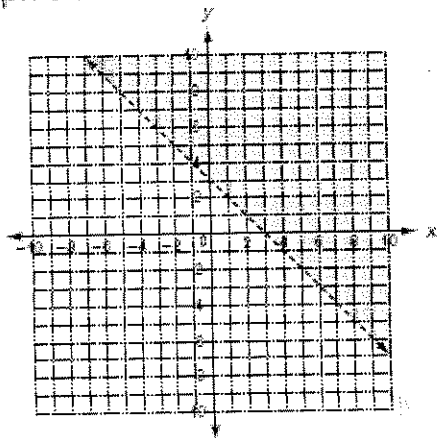
- 33) Find the slope of the best fit line. **Be sure to include units.** $m =$ _____
- 34) Find the y intercept of the best fit line. **Be sure to include units.** $b =$ _____
- 35) Write an equation for the best fit line in slope-intercept form ($y=mx+b$) _____
- 36) Write a sentence that explains what the slope of the line tells us about the height of tomato plants. **Be sure to include the slope in your answer.** _____

- 37) Write a sentence that explains what the y-intercept of the line tells us about the height of tomato plants. **Be sure to include the y-intercept in your answer.** _____

- 38) How tall were the plants on day 85? _____ (1pt)
- 39) On what day were the plants 30 inches tall? _____ (1pt)

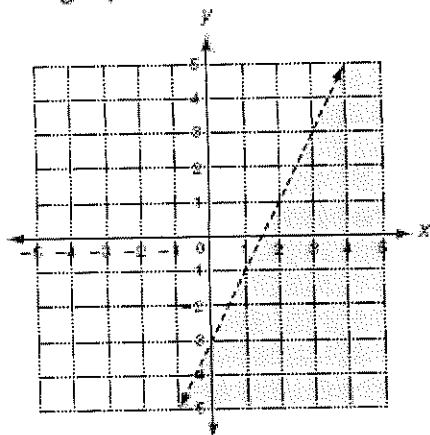
Select the best answer.

1. Which inequality is represented by the graph shown?



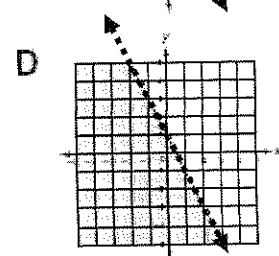
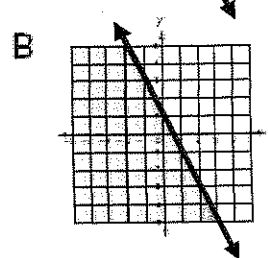
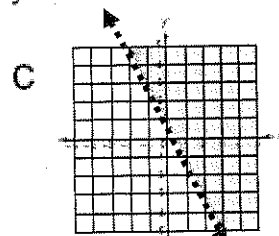
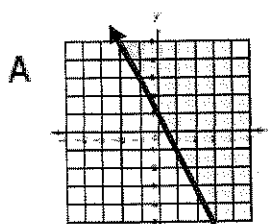
- A $y \leq -x + 3$ C $y < -x + 3$
 B $y \geq -x + 3$ D $y > -x + 3$

2. Which ordered pair is a solution of the system graphed below?

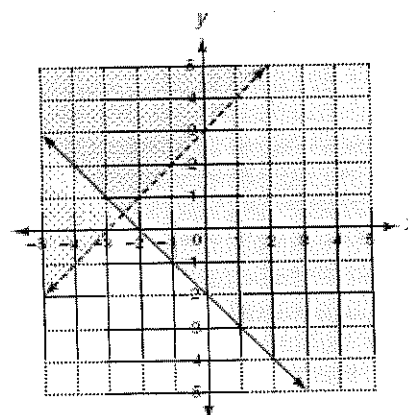


- F $(-3, 0)$ H $(0, -2)$
 G $(3, 2)$ J $(-3, 2)$

3. Which is the graph of $y \geq -2x + 1$?



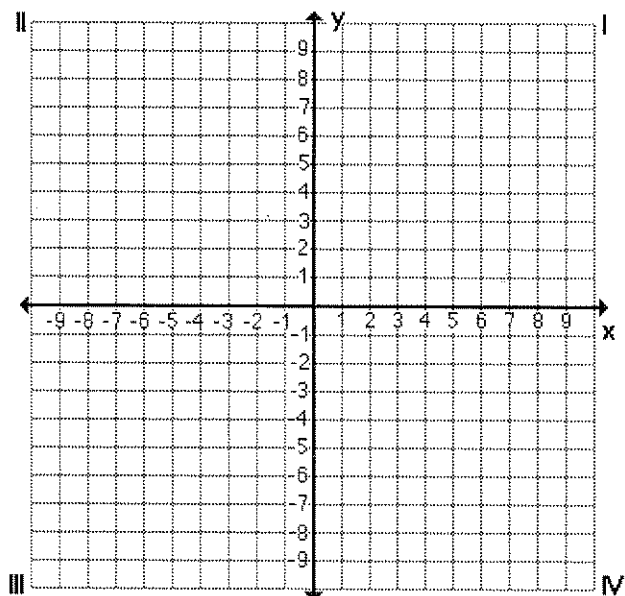
4. Which of the following is a solution of the system graphed below?



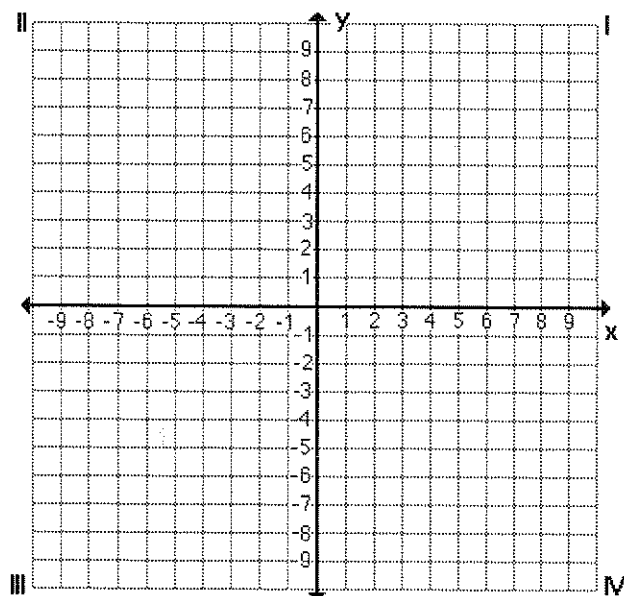
- A $(-1, 2)$ C $(2, 1)$
 B $(-3, 3)$ D $(-4, 1)$

Graph each linear inequality on the coordinate plane provided.

5. $y < \frac{2}{3}x - 3$

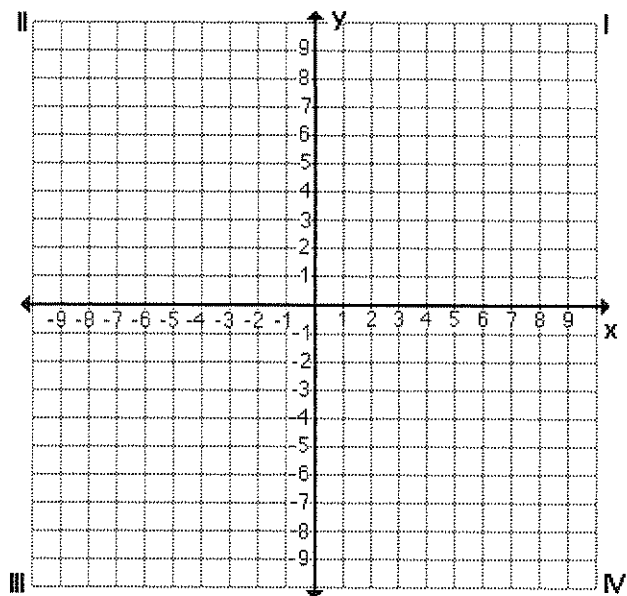


6. $2x + 3y \leq 12$

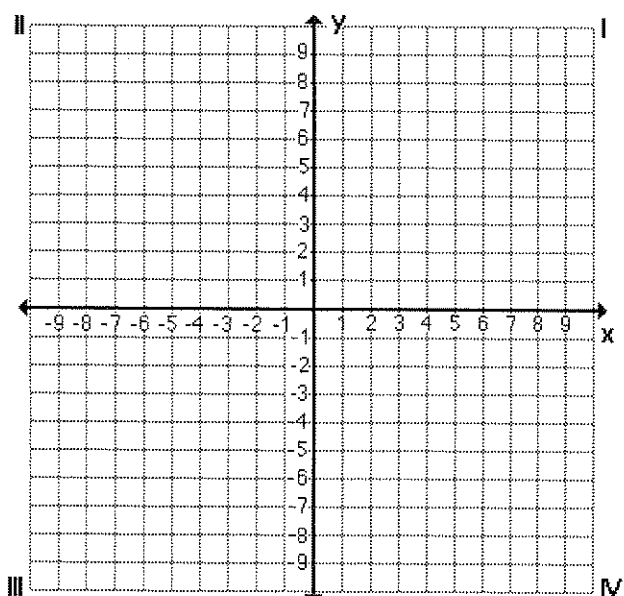


Graph each system of linear inequalities.

7. $y \leq 6x + 3$
 $y \geq -2x - 4$



8. $y \leq 3x + 3$
 $y \geq \frac{1}{2}x - 2$



EOC Review #7 Exponents & Polynomials Name _____ Per. ____

Simplify.

1. $(12n^3)(-5n)$ 2. $(b^8)^3$ 3. $(ab^5)^2$ 1. _____

2. _____

3. _____

4. $\frac{4x^5}{10x^9}$ 5. $\frac{\left(\frac{1}{2}\right)^{-8}}{\left(\frac{1}{2}\right)^{-10}}\left(\frac{3}{4}\right)^2$ 6. $\left(\frac{2^{-5}}{3}\right)^{-2}$ 4. _____

5. _____

6. _____

Simplify. Then write the result in descending order of exponents.

7. $15 + 9x + 2x + 8x^2 + 4x^2 - 2x$ 7. _____

8. $(9x^3 + 7x - 5) + (3x^3 - x^2 + x)$ 8. _____

9. $(5x^3 + 8x^2 + 7x - 3) - (x^3 + 8x^2 + 1)$ 9. _____

10. $3(2a^3 - 2a^2 + 9a - 9)$ 11. $-(x^2 + 7x - 16)$ 10. _____

11. _____

12. $-8c(-7c^3 + 6c)$ 13. $9(-x^2 + 4x - 1) + 3x(3x - 1)$ 12. _____

13. _____

14. $4(2x^3 - 1x^2 - 5x + 6) - 3x(x^2 - 5x)$ 14. _____

15. $(x - 6)(x + 9)$ 16. $(8r + 2)(r - 7)$ 15. _____

16. _____

17. $(11x - 3)(2x - 3)$ 18. $(2x - 13)(2x - 13)$ 17. _____

18. _____

19. $(2x + 7)^2$

20. $(5x - 15)^2$

19. _____

20. _____

21. $(12x + 11)(12x - 11)$

22. $(2x - 7)(2x^2 - x + 6)$

21. _____

22. _____

Express each number in Scientific Notation.

23. 24,500

24. 0.00000029

23. _____

24. _____

Express each number in Standard Notation.

25. 5.7×10^6

26. 8.5×10^{-3}

25. _____

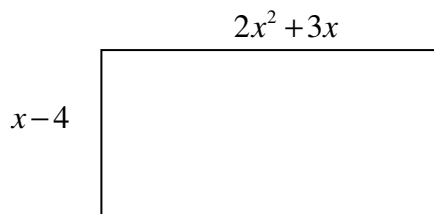
26. _____

Multiply. Write your answer in both Scientific and Standard Notation.

27. $(9 \times 10^3)(5.5 \times 10^{22})$

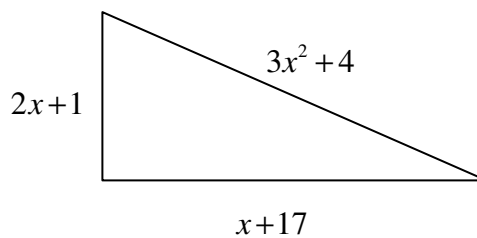
27. _____

29. Write an expression for the perimeter and area of each figure.



Perimeter _____

Area _____



Perimeter _____

Area _____

Factoring & Solving Quadratics

Factor out the greatest common factor from each polynomial.

1. $7x + 42$

2. $-8x^2 + 44x$

3. $45x^4y^4 + 21x^7y$

4. $21x^2 - 14x + 35$

5. $-34x^7 - 51x^3 + 102x^2$

Factor each polynomial by grouping.

6. $21x^3 + 7x^2 - 3x - 1$

7. $25x^3 - 15x^2 + 35x - 21$

8. $21x^3 - 35x^2 + 18x - 30$

9. $28x^3 - 35x^2 - 12x + 15$

Factor each polynomial completely. Your answer must have at least 2 binomial factors.

11. $x^2 + 9x + 20$

12. $x^2 - 11x + 18$

Factor each polynomial completely. Your answer must have at least 2 binomial factors.

13. $16x^2 + 40x + 25$

14. $30x^2 + 220x + 70$

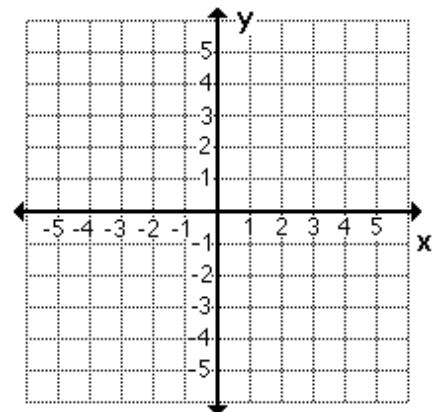
15. $4x^2 + 35x + 24$

16. $144x^2 - 4$

Solve this quadratic equation by graphing.

17) $.5x^2 - x - 1.5 = 0$.

x	y



Solve using the quadratic formula. Round to the nearest hundredth.

18) $4x^2 + 2x = 19$

19) $9x^2 - 12 = 96x$

20) $12x^2 + 100 = 19$

Solve by factoring.

7) $k^2 = 18 + 3k$

8) $x^2 = -11x - 24$

9) $2n^2 - 9 = 3n$

10) $3n^2 - 22n = -35$

Solve any way you want to:

5) $5x^2 + 48 = -46x$

6) $49p^2 - 56p = -16$

7) $15x^2 = 144 - 66x$

8) $12x^2 - 64x = -20$

A) $\left\{-\frac{5}{2}, 6\right\}$ B) $\left\{\frac{8}{5}, -6\right\}$

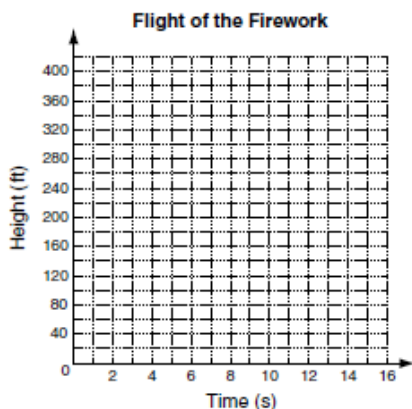
A) $\left\{-\frac{1}{3}, 4\right\}$ B) $\left\{\frac{1}{3}, 5\right\}$

C) $\left\{-\frac{2}{3}, 6\right\}$ D) $\left\{\frac{8}{3}, -8\right\}$

C) $\left\{\frac{1}{3}, 4\right\}$ D) $\left\{\frac{4}{3}, 3\right\}$

The path of a certain firework in the air is modeled by the parabolic function $y = -16x^2 + 256x - 624$ where x is the number of seconds after the fuse is lit. Write the correct answer.

1. Graph the function on the grid below.



3. Based on the graph of the firework, what are the two zeros of this function?

2. The firework will explode when it reaches its highest point. How long after the fuse is lit will the firework explode and how high will the firework be?

4. What is the meaning of each of the zeros you found in problem 3?

Select the best answer.

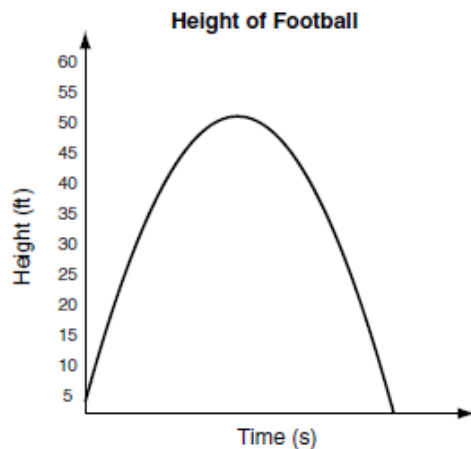
5. The quadratic function $f(x) = -16x^2 + 90x$ models the height of a baseball in feet after x seconds. How long is the baseball in the air?

A 2.8125 s C 11.25 s
B 5.625 s D 126.5625 s

7. The function $y = -0.04x^2 + 2x$ models the height of an arch support for a bridge, where x is the distance in feet from where the arch supports enter the water. How many real solutions does this function have?

F 0 H 2
G 1 J 3

6. The height of a football y in feet is given by the function $y = -16x^2 + 56x + 2$ where x is the time in seconds after the ball was kicked. This function is graphed below. How long was the football in the air?



A 0.5 seconds C 2 seconds
B 1.75 seconds D 3.5 seconds

Evaluating Functions

Evaluate each function.

1) $h(n) = 3n + 5$

Find $h(n)$ when $n = 8$.

2) $h(n) = n^2 + 4 + 2n$; Find $h(10)$

1a) For what value of n does $h(n) = 47$?

2a) For what value of n does $h(n) = 52$?

3) $g(t) = |3t - 2|$; Find $g(0)$

4) $h(x) = 5^x$; Find $h(2)$

3a) For what values of t does $g(t) = 13$?

4a) For what value of x does $h(x) = 3125$?

5) $f(n) = n^2 + n$

Find $f(n)$ when $n = -7$.

6) $g(a) = a^2 - 3a$; Find $g(7)$

5a) For what value of n does $f(n) = 90$?

6a) For what value of a does $g(a) = 208$?

7) $g(x) = -2 \cdot 4^x - 2$; Find $g(-1)$

8) $f(x) = |x - 3|$; Find $f(-6)$

7a) For what value of x does $g(x) = -32,770$?

8a) For what values of x does $f(x) = 6$?

9) $g(n) = n^2 - 4$
Find $g(n)$ when $n = -4$.

10) $g(x) = 2|x|$; Find $g(5)$

9a) For what values of n does $g(n) = 5$?

10a) For what values of x does $g(x) = 6$?

11) $f(a) = a + \frac{8}{5}$; Find $f\left(-\frac{8}{9}\right)$

12) $f(x) = -x^2 + \frac{5}{4}x$
Find $f(x)$ when $x = -1$.

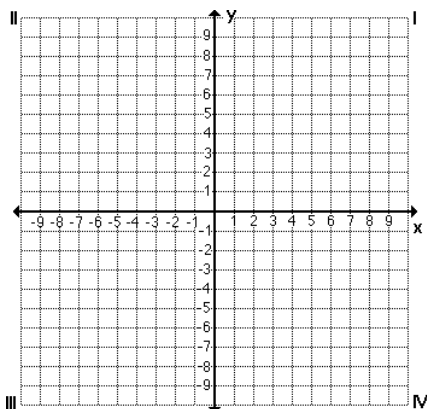
11a) For what values of a does $f(a) = \frac{3}{5}$?

12a) For what values of x does $f(x) = -\frac{87}{2}$?

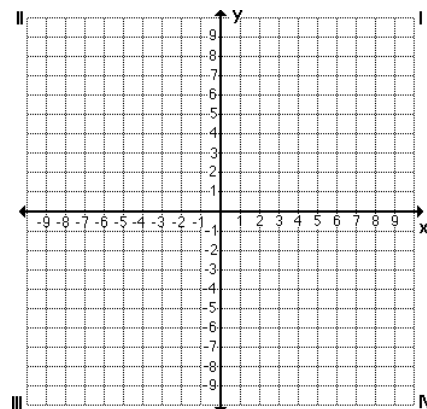
Answers to odd-numbered problems: 1) 29 1a) 14 3) 2 3a) 5 or -11/3 5) 42 5a) 9 7) -2.5 7a) 7
9) 12 9a) 3 or -3 11) 32/45 11a) -1

Graph each square root function. Find the domain and range of each.

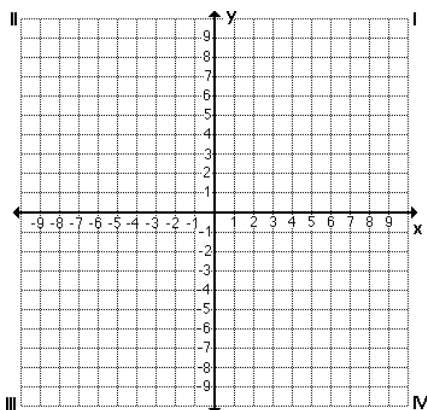
1) $y = \sqrt{x-3}$ Domain: x

Range: y 

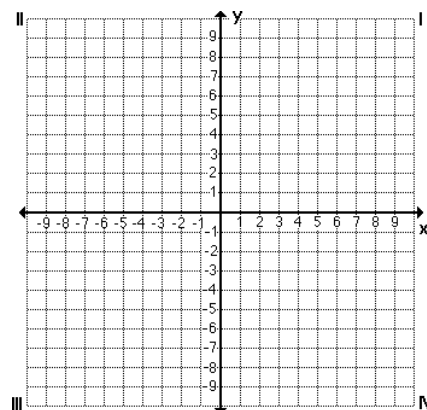
2) $y = -2\sqrt{x-3}$ Domain: x

Range: y 

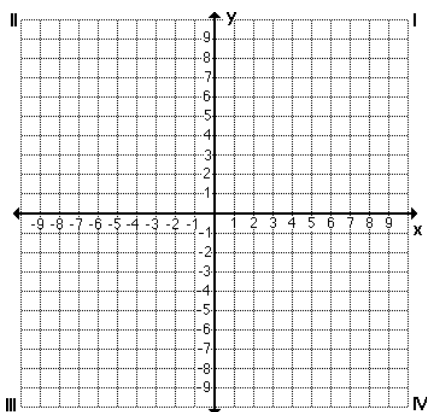
3) $y = 3\sqrt{2-x}$ Domain: x

Range: y 

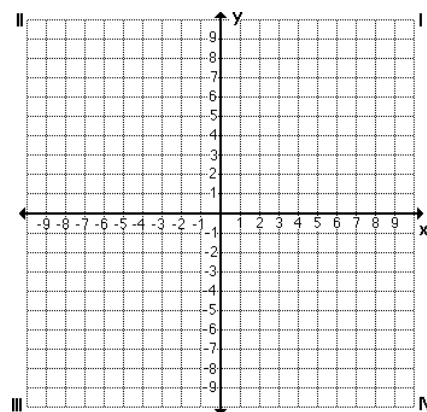
4) $y = 3 + \sqrt{-4x}$ Domain: x

Range: y 

5) $y = \sqrt{4x-8}$ Domain: x

Range: y 

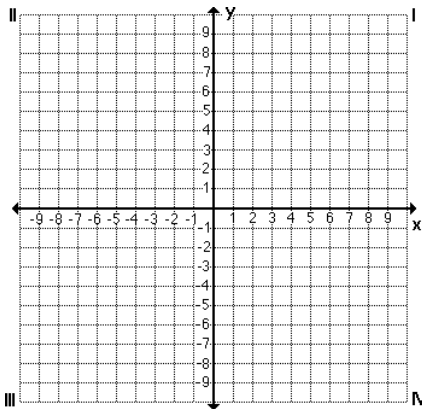
6) $y = \sqrt{-x}$ Domain: x

Range: y 

7) $y = \sqrt{\frac{1}{2}x + 1}$

Domain: x

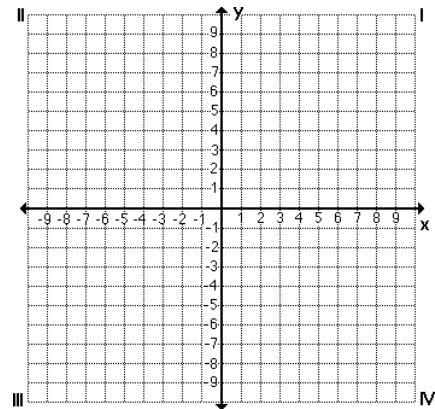
Range: y



8) $y = -2\sqrt{-x}$

Domain: x

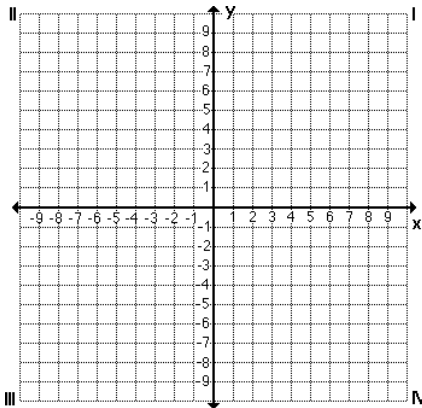
Range: y



9) $y = -5\sqrt{\frac{1}{2}x}$

Domain: x

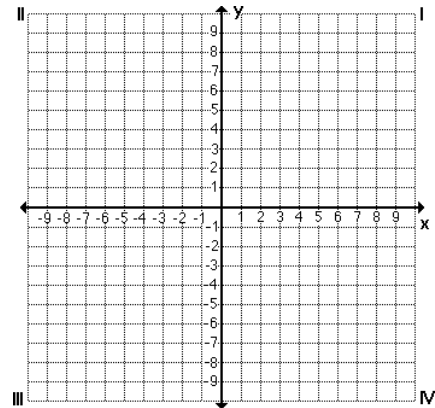
Range: y



10) $y = 2 + 3\sqrt{5-x}$

Domain: x

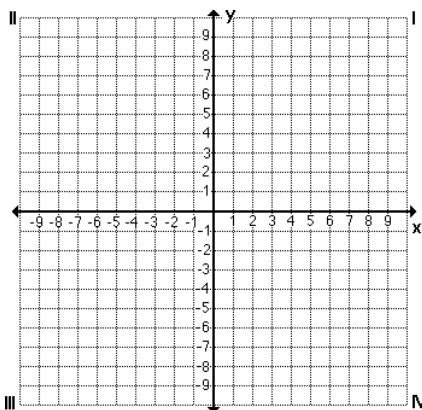
Range: y



11) $y = \frac{1}{2}\sqrt{2x+4}$

Domain: x

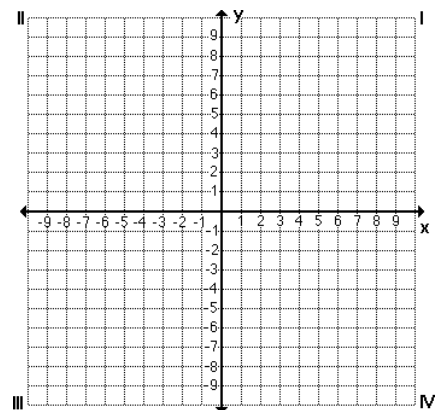
Range: y



12) $y = \sqrt{\frac{x}{3}} + 3$

Domain: x

Range: y



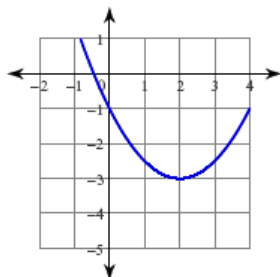
Pick the graph that matches the equation.

To make your graph the right shape you may need to hit:

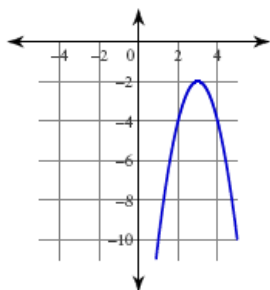
ZOOM 6 ZOOM 5

1) $y = -2x^2 + 12x - 20$

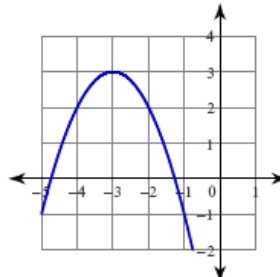
A)



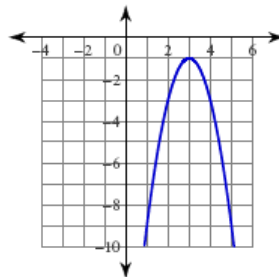
B)



C)

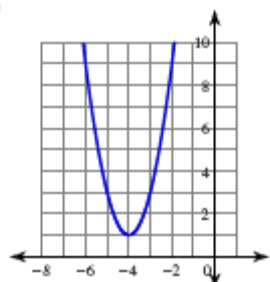


D)

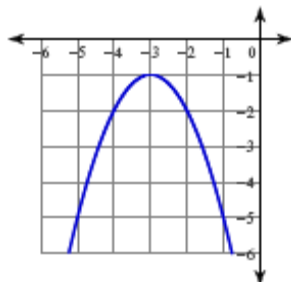


2) $y = 4x^2 - 8x + 8$

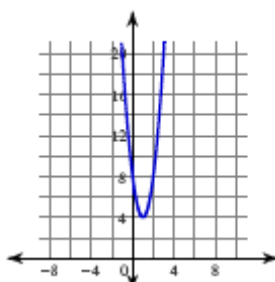
A)



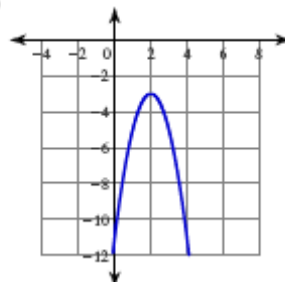
B)



C)



D)

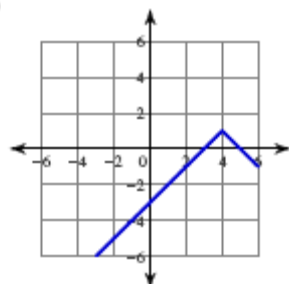


To enter an absolute value function use the keys:

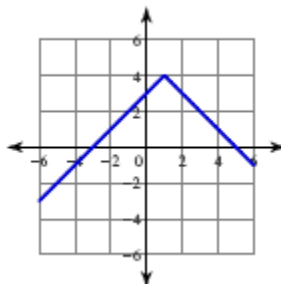
MATH > ENTER

3) $y = -|x - 1| - 4$

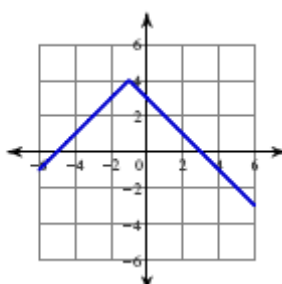
A)



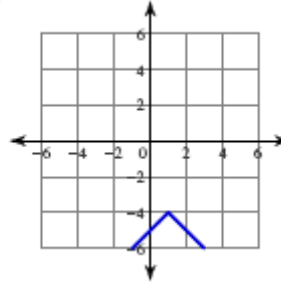
B)



C)

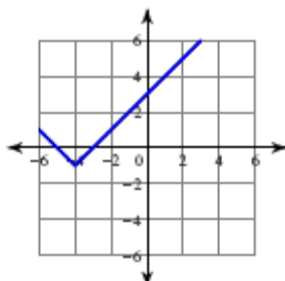


D)

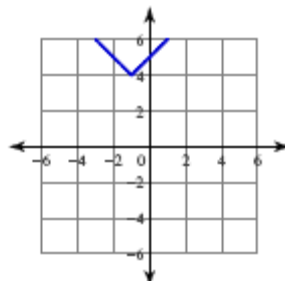


4) $y = |x - 1| - 4$

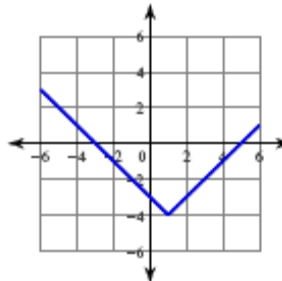
A)



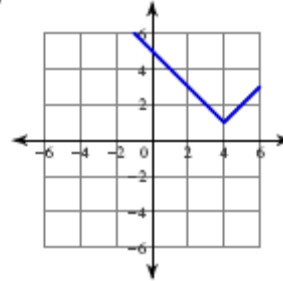
B)



C)

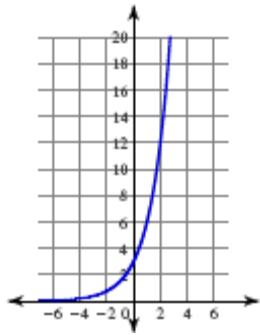


D)

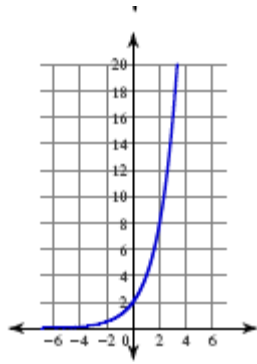


6) $y = 3 \cdot 2^x$

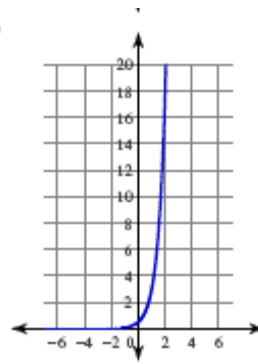
A)



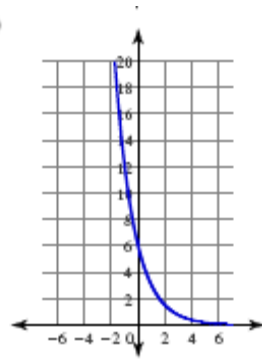
B)



C)



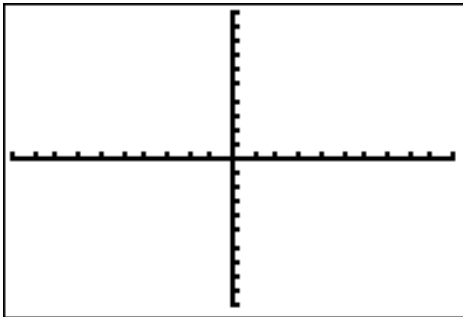
D)



Solving systems of equations with a graphing calculator.

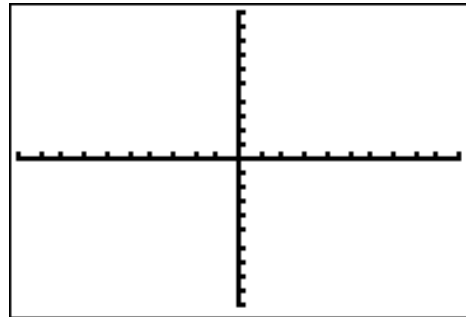
- Graph both equations on a graphing calculator (solve for y if needed)
- Sketch the graph of both equations on the grid provided
- Use the **TRACE** and **2nd** **TRACE** **5** **ENTER** **ENTER** to find the solution.

7. $y = -\frac{1}{3}x - 1$ $y = \frac{4}{3}x - 6$



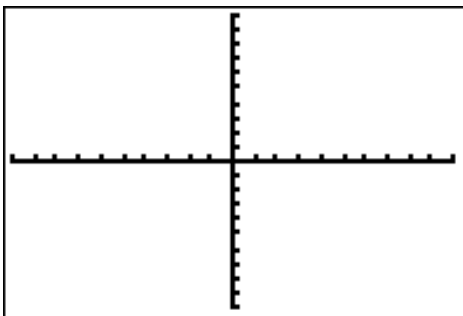
Solution: (,)

8. $y = -\frac{3}{2}x + 4$ $y = \frac{1}{2}x$



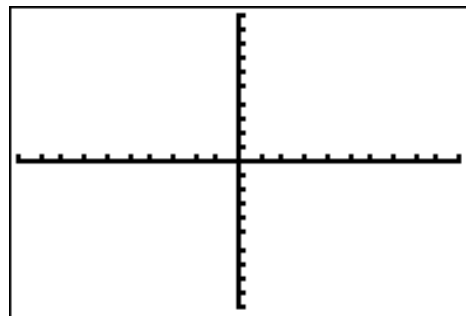
Solution: (,)

9. $y = -x - 3$ $-2x + y = -6$



Solution: (,)

10. $x + y = 2$ $2y - x = 10$

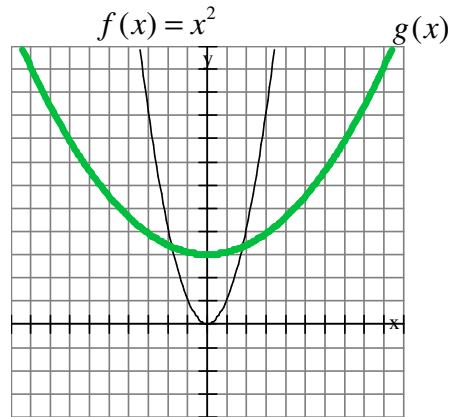


Solution: (,)

To solve this type of transformation question put the first equation in $y_1 =$ and then try each of the answers in $y_2 =$

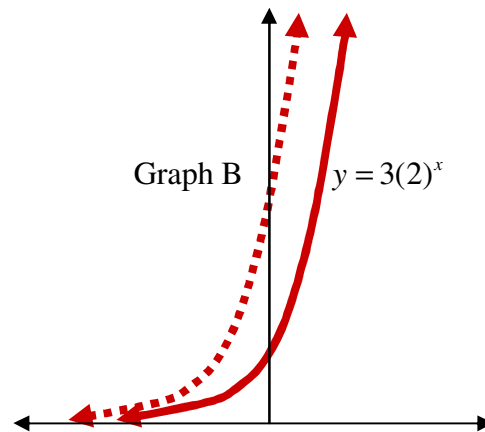
11. The graphs of $f(x) = x^2$ and $g(x)$ are plotted to the right. Which function could be $g(x)$?

- A) $g(x) = 10x^2 + 3$
- B) $g(x) = 10x^2 - 3$
- C) $g(x) = \frac{1}{10}x^2 + 3$
- D) $g(x) = \frac{1}{10}x^2 - 3$



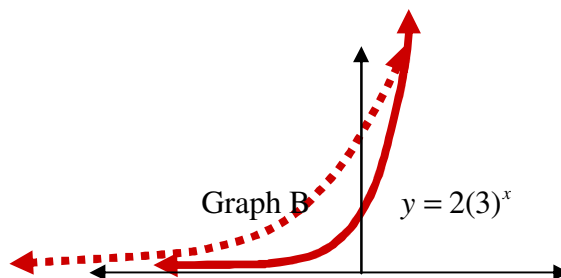
12. The graph of $y = 3(2)^x$ is shown. Which could be the equation for graph B?

- a. $y = 9(2)^x$
- b. $y = 1(2)^x$
- c. $y = 3(4)^x$
- d. $y = 3(1.5)^x$



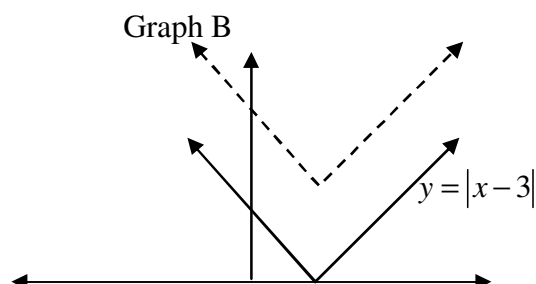
13. The graph of $y = 2(3)^x$ is shown. Which could be the equation for graph B?

- a. $y = \frac{1}{2}(4)^x$
- b. $y = 4(4)^x$
- c. $y = 1(1.5)^x$
- d. $y = 4(1.5)^x$



14. The graph of $y = |x - 3|$ is shown. Which could be the equation for graph B?

- a. $y = |x + 3|$
- b. $y = 4|x - 3|$
- c. $y = |x - 7|$
- d. $y = |x - 3| + 4$



15. Which equation represents the data in this table?

x	y
-4	6
0	2
2	0
7	5

a. $y = x - 10$

b. $y = |x| + 2$

c. $y = x^2 - 10$

d. $y = |x - 2|$

16. Which equation represents the data in this table?

x	y
-4	6
-1	-9
2	-6
5	15

a. $y = x - 10$

b. $y = |x| + 2$

c. $y = x^2 - 10$

d. $y = |x - 2|$

17. Which equation represents the data in this table?

x	y
-3	7
0	-2
3	7
6	16

a. $y = x^2 - 2$

b. $y = x^2 + |x| - 2$

c. $y = x^2 + 10$

d. $y = 3|x| - 2$

18. Which equation represents the data in this table?

x	y
-3	10
0	-2
3	10
6	40

a. $y = x^2 - 2$

b. $y = x^2 + |x| - 2$

c. $y = x^2 + 10$

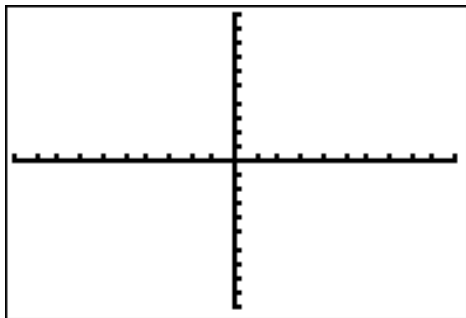
d. $y = 3|x| - 2$

Graphing Linear Inequalities

Graph each system of linear inequalities.

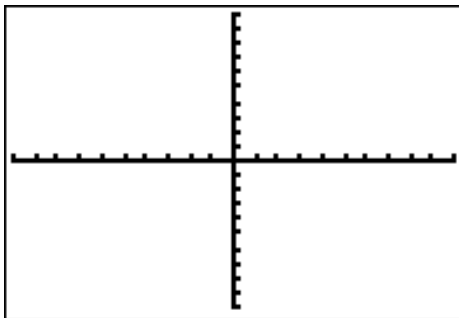
19. $y \leq 6x + 3$
 $y \geq -2x - 4$

Is the point (5,5) a solution
to this system of inequalities?



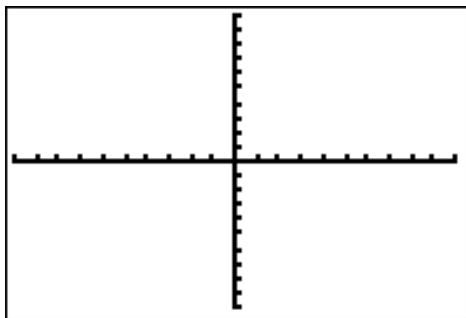
20. $y \leq 3x + 3$
 $y \geq \frac{1}{2}x - 2$

Is the point (-3,4) a solution
to this system of inequalities?



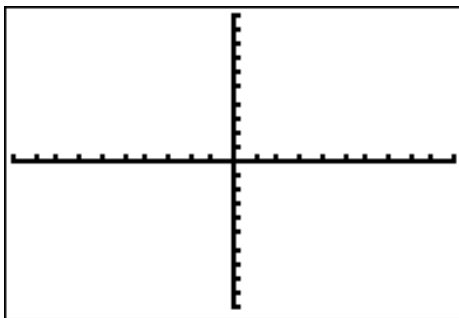
21. $y \leq x + 3$
 $y \geq x - 4$

Is the point (5,5) a solution
to this system of inequalities?



22. $y \leq 2x + 1$
 $y \geq \frac{3}{4}x - 2$

Is the point (10,7) a solution
to this system of inequalities?



Practice End of Course Test

Select the best answer and fill in the appropriate bubble on your answer sheet.

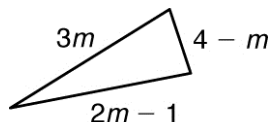
1. Which situation is best modeled by the expression $2 + x$?

A Julia lost 2 out of her x marbles under the couch.
 B Brenda had \$2 and spent x dollars on a hamburger.
 C Alicia is 2 years older than her sister Delilah who is x years old.
 D Joseph ran the x mile course 2 times.

2. Solve $8x - (2x + 3) = 4x + 1$.

F $-\frac{1}{3}$ H 2
 G -1 J 4

3. Which expression represents the perimeter of the triangle below?



A $3 + 4m$ C $5 + 4m$
 B $3 + 6m$ D $5 + 6m$

4. If $a = -1$, which quadrant does the point $(2a, -a)$ lie in?

F Quadrant I H Quadrant III
 G Quadrant II J Quadrant IV

5. The time it takes Gregg to get to school on his bike is $\frac{1}{3}$ of the time it takes to walk. Which equation can be solved to find the time it takes Gregg to walk to school if he can bike there in 5 minutes?

A $3w = 5$ C $\frac{1}{3}w = 5$
 B $w = \frac{1}{3} \times 5$ D $w - \frac{1}{3} = 5$

6. Solve $-\frac{x}{7} - \frac{2}{3} = \frac{4}{21}$.

F -6 H $1\frac{1}{3}$
 G $-1\frac{1}{3}$ J 6

7. Approximately 9 out of 100 people are left handed. Out of a population of 1740 people, how many are likely to be left handed?

A 139 C 174
 B 157 D 193

8. Solve $2|x + 1| = 8$.

F 3 H -4, 3
 G 3, 5 J -5, 3

9. Which is NOT a solution to the inequality $4x - 7 < 5$?

A -2 C 1
 B 0 D 3

10. Abbie and Andres are both five years old. Every year they each get a cash present from their neighbor. Andres gets \$1.50 for every year in his age, and Abbie gets \$20. How old will they be when Andres gets more money than Abbie?

F 9 H 14
 G 13 J 20

11. Which represents the solutions of $|2x| - 5 < -1$?

A $x > 2$ OR $x < -2$
 B $x > 2$ OR $x > -2$
 C $x > -2$ AND $x < 2$
 D $x < -2$ AND $x > 2$

End of Course Test

12. Which of the following statements is true?

F The dependent variable is the input of the function.

G The dependent variable determines the domain of the function.

H In $f(x) = 2x + 1$, x is the dependent variable.

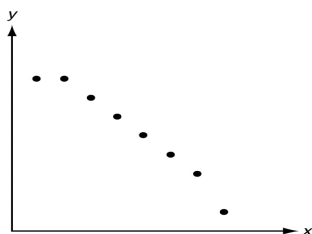
J In $f(x) = 2x + 1$, $f(x)$ is the dependent variable.

13. Which function has $(0, 7)$ on its graph?

A $-3x + y = 7$ C $y = 14 - x$

B $y = x - 7$ D $-7x + y = 2$

14. Which situation best fits the graph below and what type of correlation is it?



F distance traveled vs. cost of gas; negative correlation

G distance traveled vs. cost of gas; positive correlation

H time traveled vs. distance from destination; negative correlation

J time traveled vs. distance from destination; positive correlation

15. A function has x -intercept 3 and y -intercept 2. Which of the functions below could be this function?

A $4 + 3x = 2y$

B $2x - 3y = -6$

C $2y + 3x = 4$

D $3y - 6 = -2x$

16. The scoring for a football game by quarters was recorded as the ordered pairs $\{(1, 7), (2, 10), (3, 21), (4, 21)\}$. Which of the following statements is true?

F The relation is a function with domain $\{1, 2, 3, 4\}$.

H The relation is a function with domain $\{7, 10, 21\}$.

G The relation is not a function.

J The relation is a function with domain $\{1 \leq x \leq 4\}$.

17. Which equation describes a line that passes through $(7, 1)$ and is perpendicular to the line described by $y = -\frac{1}{2}x + 3$?

A $y = 2x - 13$ C $y = 2x - 6$

B $y = 2x - 7$ D $y = 2x + 3$

18. The change from $f(x) = 4x + 2$ to $g(x) = 3x + 2$ is an example of which type of transformation?

F rotation H translation up

G reflection J translation down

19. A local video store has two new renting plans. Plan A charges a \$10 monthly fee and \$2 for every movie rented. Plan B charges \$40 per month but then each movie rented is only 25¢. How many movies must be rented in a month to make plan B the cheaper option?

A 17 C 28

B 18 D 29

20. The correct answer is G.

21. Which point is a solution of $\begin{cases} y - 3x \geq 2 \\ y \leq x + 9 \end{cases}$?

A $(-2, 8)$ C $(4, -1)$

B $(-1, 4)$ D $(8, -2)$

End of Course Test

22. Which of the following pairs of points is the solution to the system of equations

$$\begin{cases} y = x^2 - 1 \\ y = -x + 5 \end{cases}$$

F (2, 3), (4, 15) H (-3, 8), (2, 3)

G (-3, 8), (1, 4) J (1, -1), (1, 4)

23. Which of the following is NOT equivalent

to $\left(\frac{x^2y}{4x^5}\right)^{-2}$?

A $\left(\frac{y}{4x^3}\right)^{-2}$ C $\left(\frac{16x^5}{y^2}\right)$

B $\left(\frac{4x^3}{y}\right)^2$ D $\left(\frac{4x^5}{x^2y}\right)^2$

24. Simplify $\left(x^{\frac{1}{4}}\right)^8 \sqrt[3]{x^3}$. All variables

represent nonnegative numbers.

F x^3 H $x^2(x)$

G x^4 J x^6

25. Identify the quartic trinomial.

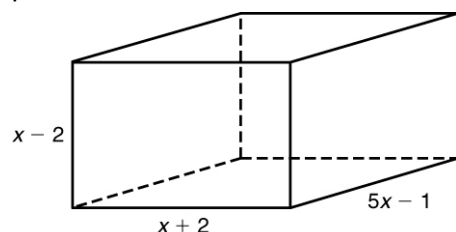
A $4x^4 - 2x^5 + 6x$

B $-x^3 + 7x^2 - 2x + 3$

C $x^3 + 14x^4 - 3$

D $4x^4 - x^3 - 5x + 1$

26. What is the volume of the rectangular prism shown below?



F $5x^3 - 21x^2 + 24x - 4$

G $5x^3 - x^2 - 20x + 4$

H $5x^3 + x^2 - 20x - 4$

J $5x^3 + 19x^2 + 16x - 4$

27. Which pair of terms has a GCF of $5x$?

A $5x^2$ and 15 C $25x^2$ and $50x$

B $5x^2$ and $20x$ D $40x^3$ and $8x^2$

28. Factor $2x^2 + 17x + 30$.

F $(2x + 6)(x + 5)$

G $(2x + 5)(x + 6)$

H $(2x + 10)(x + 3)$

J $(2x + 3)(x + 10)$

29. Which values of b and c would make $x^2 + bx + c$ a perfect square trinomial?

A $b = 2, c = 6$ C $b = 8, c = 16$

B $b = 6, c = 12$ D $b = 10, c = 100$

30. Which of the following statements does NOT apply to the quadratic function $f(x) = -x^2 + 7$?

F The vertex is at (0, 7).

G The parabola opens downward.

H Its axis of symmetry is $y = 0$.

J There are two x -intercepts.

31. Sarah is hiking and notices that some of the mountains resemble parabolas. If the following functions describe shapes of mountains, which of the following mountains would have the steepest slope?

A Mountain A: $y = -\frac{3}{2}x^2 + 5$

B Mountain B: $y = -x^2 + 5$

C Mountain C: $y = -\frac{1}{2}x^2 + 5$

D Mountain D: $y = -\frac{1}{5}x^2 + 5$

32. Solve $x^2 + 10x = 39$ by completing the square.

F $x = -5 \pm \sqrt{14}$

G $x = -3$ or 13

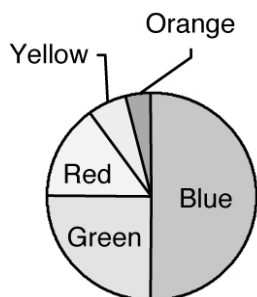
H $x = 3$ or -13

J $x = 5 \pm \sqrt{14}$

End of Course Test

33. Eva's class was surveyed to help figure out what color their school banner should be. If a total of 28 students were surveyed, how many chose green?

School Banner



- A 4 students C 7 students
B 6 students D 10 students
34. Which of the following pieces of information can be obtained from a box-and-whisker plot?
- F the mean of the data set
G the number of values in the data set
H the median of the data set
J the mode of the data set
35. Andrew has 7 tickets to a concert and 2 of the tickets have backstage passes. If Andrew passes out the tickets randomly to 7 friends, what are the odds against his friend Donovan getting a backstage pass?
- A 2:5 C 5:2
B 2:7 D 5:7
36. The table shows the number of customers at an ice cream shop and the number of sundaes sold. Which is the best line of fit for the data?
- | Customers | 10 | 12 | 20 | 24 |
|-----------|----|----|-----|-----|
| Sundaes | 60 | 70 | 118 | 148 |
- F $y \approx 6.24x - 4.0$ H $y \approx 6.82x - 11.0$
G $y \approx 6.0x - 1.3$ J $y \approx 4.0x - 48.7$
37. What is the 5th term in the geometric sequence 96, 72, 54, ...?
- A 30 B $30\frac{3}{8}$ C 36 D $40\frac{1}{2}$
38. Which two quadrants is the function $f(x) = 2(4)^x$ graphed in?
- F Quadrants I and II
G Quadrants II and III
H Quadrants III and IV
J Quadrants I and IV
39. Which function has the higher rate of change over the interval $[0, 3]$?
- A $y = 2x + 4$
B $y = -x - 3$
C $y = 2x^2 - 1$
D $y = 2(3)^x$
40. Which is the more precise measurement?
- F 84.2 cm
G 84 cm
H 842 mm
J 0.8 m
41. What is the x-value for the solution to the system of equations below?
- $$\begin{cases} 2x + y = 8 \\ -4x - y = -14 \end{cases}$$
- A -3 C 3
B -2 D 4
42. A research biologist starts with 100 bacteria and watches it double in number each day. Which equation will give the number of bacteria as a function of x, the number of days?
- F $y = 2^x$
G $y = 100^x$
H $y = 2(100)^x$
J $y = 100(2)^x$
43. Which is an x-intercept of the graph of $y = x^2 + x - 12$?
- A 1 B -4
C -3 D 4

Answer Key End of Course Assessment

END OF COURSE ASSESSMENT

- | | |
|-------|-------|
| 1. C | 2. H |
| 3. A | 4. G |
| 5. C | 6. F |
| 7. B | 8. G |
| 9. C | 10. G |
| 11. C | 12. H |
| 13. A | 14. H |
| 15. C | 16. F |
| 17. A | 18. F |
| 19. B | 20. G |
| 21. B | 22. H |
| 23. C | 24. G |
| 25. B | 26. H |
| 27. B | 28. G |
| 29. C | 30. H |
| 31. A | 32. H |
| 33. C | 34. H |
| 35. C | 36. F |
| 37. B | 38. F |
| 39. C | 40. H |
| 41. C | 42. H |
| 43. B | |