

NAME _____ **DATE** _____ **PERIOD** _____

Algebra 1 - Spring Final Exam Review

1. Simplify: A) $4 - 2(x - 3)$ B) $-3x(x + 4) + 8x - (2x - 2)$

2. Solve: A) $3x - 5 = 16$ B) $3(x - 5) = 3$

3. A moving company charges \$1200 for the supplies needed to pack up a small house and an additional \$90 per hour to do the loading and moving. If the cost of moving is \$1740, how many hours did the moving company need to move the small house?

Equation: _____

4. Which of the following relations is not a function?

I. $\{(3, 4), (4, 5), (3, 6)\}$
 II. $\{(3, 4), (4, 4), (5, 4)\}$
 III. $\{(3, 6), (3, 5), (3, 4)\}$
 IV. $\{(3, 6), (4, 5), (5, 3)\}$

A. I and II only C. I, II, and III only
 B. II and IV only D. I and III only

If $f(x) = x^2 - 5$ and $g(x) = -4x + 2$, find each of the following.

<p>5. $f(-3) =$</p>	<p>6. $g(-2) =$</p>
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7. Write the equation that represents the relationship between x and y.

x	-4	-1	2	6
y	-11	-5	1	9

8. For $f(x) = \{(0, 6), (1, 3), (2, 0), (3, -3)\}$ find the domain and range.

9. A) Find the domain and range of the graph shown.

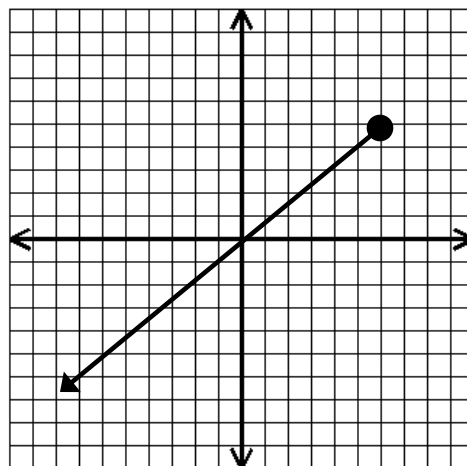
Domain: _____

Range: _____

B) How would it change if there was a left endpoint at $(-1, -1)$?

Domain: _____

Range: _____

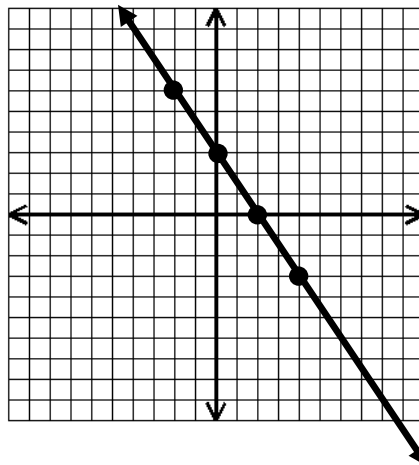


10. What is the slope of the graph shown?

A. $-\frac{3}{2}$ C. $-\frac{2}{3}$

B. $\frac{3}{2}$ D. $\frac{2}{3}$

Equation: _____

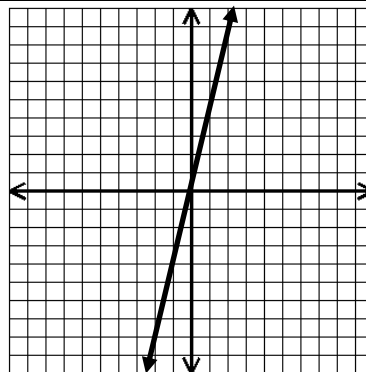


11. What is the slope of the graph shown?

A. -4 C. $-\frac{1}{4}$

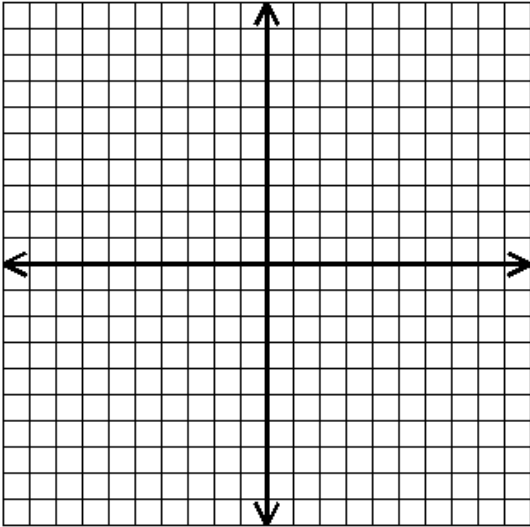
B. 4 D. $\frac{1}{4}$

Equation: _____

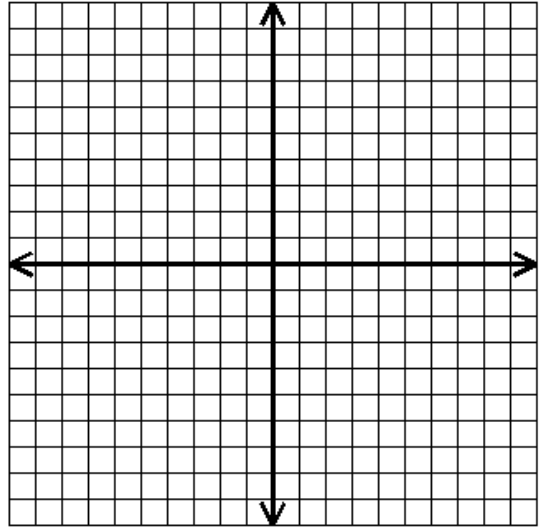


Identify the slope and y-intercept and then sketch the graph of each equation.

12. $y = \frac{5}{3}x + 2$ $m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$

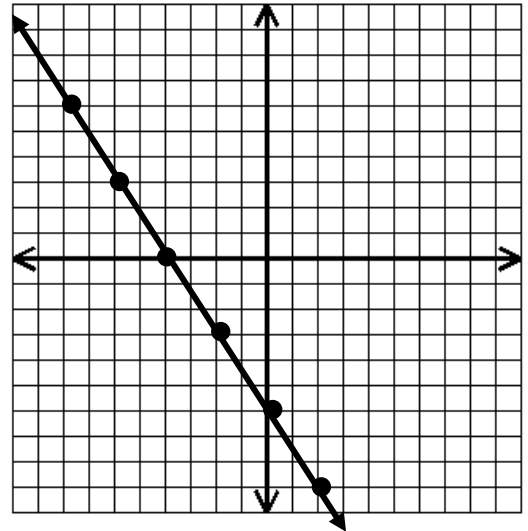


13. $3x + 4y = -12$ $m = \underline{\hspace{2cm}}$ $b = \underline{\hspace{2cm}}$



14. Using the graph shown answer the following.

- What is the x-intercept?
- What is the y-intercept?
- What is the slope?
- What is the equation of the line?
- Describe the graph if the y-intercept was (0, 1).



15. Write the equation of a line that is perpendicular to $y = 6x + 1$ and goes through (12, -5).

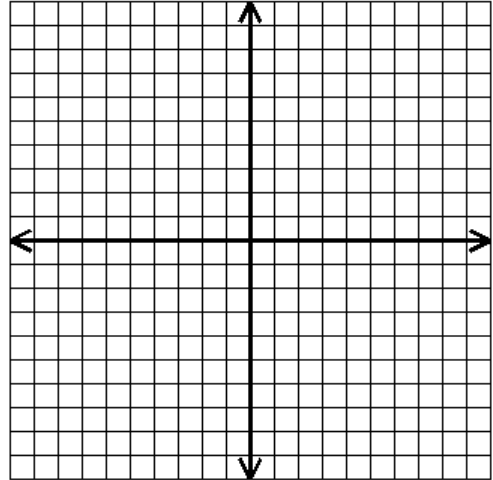
16. Write the equation of a line that is parallel to $y = \frac{5}{3}x + 2$ and goes through (-6, -3).

17. Write the equation of a line that passes through the points $(-4, -4)$, $(4, -2)$, and $(12, 0)$.

18. Solve by graphing.

$$3x + 4y = 12$$

$$2x + 4y = 8$$



Solution: _____

19. Elizabeth met 24 of her cousins at a family reunion. The number of male cousins was 6 less than twice the number of female cousins. If M represented the number of male cousins and F the number of female cousins, which system of equations could be used to find how many male cousins Elizabeth met?

A. $M = 2F + 6$
 $M - F = 24$

C. $F = 2M + 6$
 $M - F = 24$

B. $M = 2F - 6$
 $M + F = 24$

D. $F = 2M - 6$
 $M + F = 24$

20. If 8 pens and 7 pencils cost \$3.37 while 5 pens and 11 pencils cost \$3.10, how much does each pen and pencil cost?

Equations: _____

Solution: _____

<p>21. Simplify: $-4a^4 \cdot -5a^3$</p>	<p>22. Simplify: $\frac{-15a^4b^3}{18a^2b^6}$</p>
<p>23. Simplify: $\frac{20a^{-5}b^6c^0}{4a^6b^2}$</p>	<p>24. Simplify: $\frac{(6a^2)(4a^6)}{3a^7}$</p>
<p>25. Simplify $(2x - 6)(3x - 1)$</p>	<p>26. A rectangle has a width of $3x + 4$ and a length of $5x - 2$, which expression would represent the area of the rectangle?</p>

FACTOR.

<p>27. $x^2 + 5x + 6$</p>	<p>28. $x^2 - 49$</p>
<p>29. $x^2 + 3x - 18$</p>	<p>30. $x^2 - 3x - 40$</p>
<p>31. What are the solutions of the quadratic equation $n^2 - 5n - 6 = 0$?</p>	

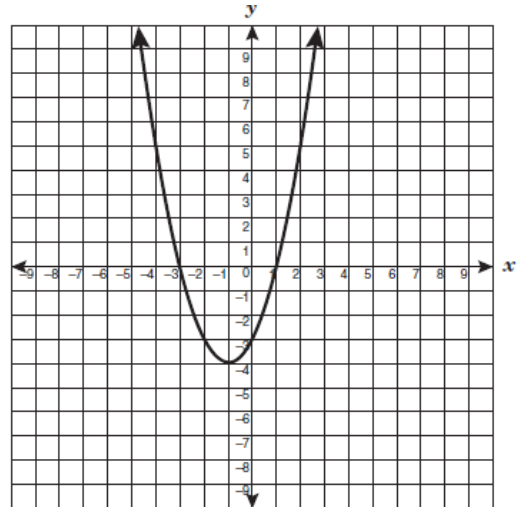
32. Answer the following for the graphed function.

Vertex: _____ (Min or Max)

Roots: _____

Domain: _____

Range: _____



What is the negative value of x when the function is equal to 5? _____

33. Solve $x^2 + 9x - 3 = 0$ using the quadratic formula.

34. Simplify: $\sqrt{120}$

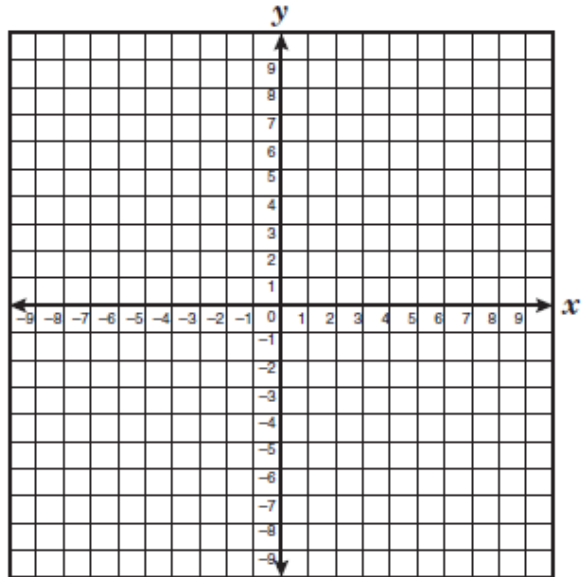
35. Simplify: $3x\sqrt{27x^3y^2}$

36. Simplify: $(7\sqrt{2})^2$

37. Simplify: $9\sqrt{2} + 7\sqrt{32}$

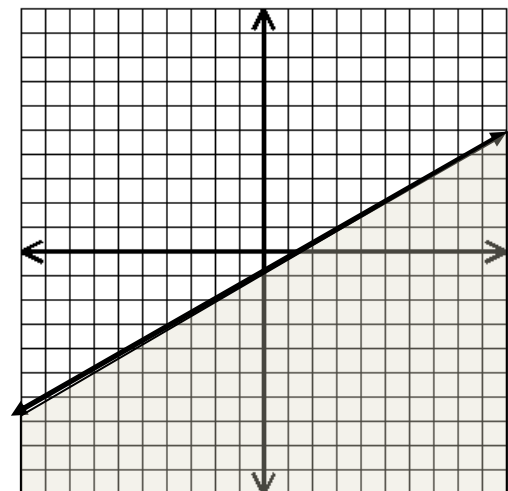
38. Simplify: $5\sqrt{96} - 2\sqrt{24} + 3\sqrt{54}$

39. Which best describes the effect on the graph of $f(x) = 3x - 5$ if the y-intercept is changed to -1?



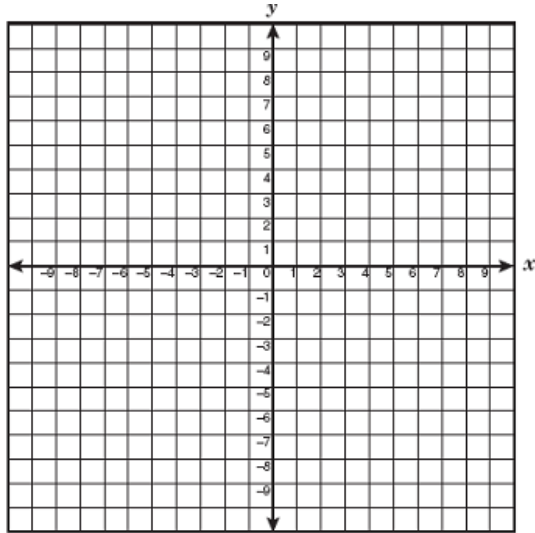
- A. The slope decreases.
- B. The new line passes through the origin.
- C. The x-intercept increases.
- D. The y-intercept increases.

40. Which inequality represents the graph shown?



- A. $y \geq \frac{3}{5}x - 1$
- B. $y > \frac{3}{5}x - 1$
- C. $y < \frac{3}{5}x - 1$
- D. $y \leq \frac{3}{5}x - 1$

41. Give the equation for the **quadratic parent function** and sketch its graph.



Equation: _____

Min or Max: _____

Vertex: _____

Domain: _____

Range: _____

Use $y = a(x - c)^2 + d$ to answer the following:

If "a" is negative: _____

If $a > 1$, the graph _____

If $0 < a < 1$, the graph _____

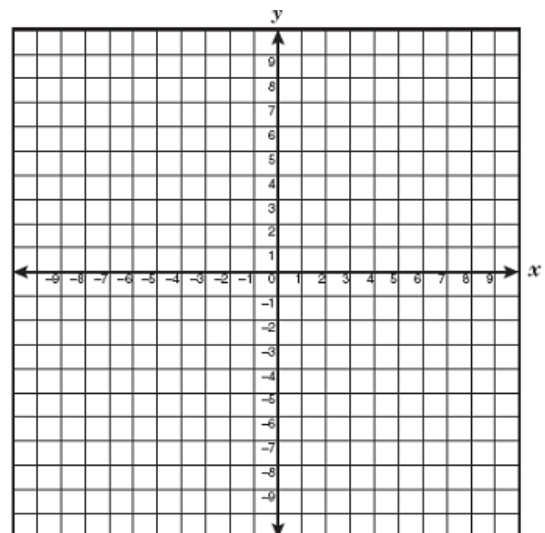
If $(x + c)$, the graph _____

If $(x - c)$, the graph _____

If d is positive, the graph _____

If d is negative, the graph _____

42. Give the equation for the **linear parent function** and sketch its graph.



Equation: _____

Increasing or Decreasing: _____

Slope: _____

y-intercept: _____

Domain: _____

Range: _____

Use $y = mx + b$ to answer the following:

As m increases, the graph becomes _____

As m decreases, the graph becomes _____

If "b" increases, the graph _____

If "b" decreases, the graph _____

ANSWERS IN RANDOM ORDER

A	$20a^7$	$\frac{5b^4}{a^{11}}$	shifts down	$y \geq -4$ / shifts left
B	$9x^2y\sqrt{3x}$	$8a$	shifts down	$x \leq 6$ / shifts right
B	$2\sqrt{30}$	$\frac{-5a^2}{6b^3}$	steeper	$y \leq 5$
D	$25\sqrt{6}$	$\{-3, 0, 3, 6\}$	less steep	$-1 \leq y \leq 5$
D	$37\sqrt{2}$	$\{0, 1, 2, 3\}$	shifts up	$-1 \leq x \leq 6$
D	$(0, -3)$	$(-3, 0)$	shifts up	$y \geq 0$
4	$(-4, 0)$	$\frac{-9 \pm \sqrt{93}}{2}$	stretches (narrower)	$y = \frac{1}{4}x - 3$
6	$(4, 0)$	$15x^2 + 14x - 8$	compresses (wider)	$y = \frac{5}{3}x + 7$
0.29	$(0, 2)$	$(x + 3)(x + 2)$	opens down	$y = -\frac{1}{6}x - 3$
7	$(0, -6)$	$(x + 7)(x - 7)$	increasing	$y = -\frac{3}{2}x - 6$
10	$(1, 0)$	$(x + 6)(x - 3)$	minimum	$y = 2x - 3$
98	$(0, 0)$	$(x - 8)(x + 5)$	All real numbers	$y = x^2$
-4	$(0, 0)$	$-2x + 10$	All real numbers	$y = x$
$\frac{5}{3}$	$(-1, -4)$	$6x^2 - 20x + 6$	All real numbers	$y = -\frac{3}{2}x + 3, y = -\frac{3}{2}x + 1$
6	$\frac{3}{-4}$	$-3x^2 - 6x + 2$	All real numbers	$y = 4x$
1	6	$-\frac{3}{2}$	-1	0.15

