

Algebra 1 Standards Test

1

$$\sqrt{9} + \sqrt[3]{27}$$

- A. 6
- B. 7
- C. 9
- D. 10

2

Which expression is equivalent to, x^6x^3 ?

- A. x^9
- B. x^{18}
- C. x^3
- D. x^{12}

3

What is the solution to this equation?

$$|2x - 6| = 4$$

- A. $x = -5$ or $x = 5$
- B. $x = 1$ or $x = 5$
- C. $x = -1$ or $x = 1$
- D. $x = -2$ or $x = 3$

4

Which equation is equivalent to

$$4x - 3(4x + 1) = -14x?$$

- A. $6x = -3$
- B. $-6x = -3$
- C. $6x = 3$
- D. $3x = 6$

5

What is the solution set of the inequality

$$|2x - 6| - 4 < 10?$$

- A. $x > -10$ or $x < 4$
- B. $-10 < x < 4$
- C. $x > -4$ or $x < 10$
- D. $-4 < x < 10$

6

Solve: $3(x + 5) = 2x + 35$

Step 1: $3x + 5 = 2x + 35$

Step 2: $x + 5 = 35$

Step 3: $x = 30$

Which step. If any, is the first incorrect step?

- A. Step 1
- B. Step 2
- C. Step 3
- D. Every step is correct.

7

140 foot length of rope is cut into three pieces. The longest is four times as long as the shortest, and the middle length rope is twice as long as the shortest. What is the length of the middle length piece?

- A. 20 feet
- B. 30 feet
- C. 40 feet
- D. 80 feet

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Solve: $x^2 - 9 = 0$

Step 1: $(x - 3)(x - 3) = 0$

Step 2: $x - 3 = 0$

Step 3: $x = 3$

Which step, if any, is the first incorrect step?

- A. Step 1
- B. Step 2
- C. Step 3
- D. Every step is correct.

9

When is this statement true?

The square of a number is greater than the original number.

- A. This statement is always true.
- B. This statement is never true.
- C. This statement is true for numbers between 0 and 1 only.
- D. This statement is true for all, but numbers between 0 and 1.

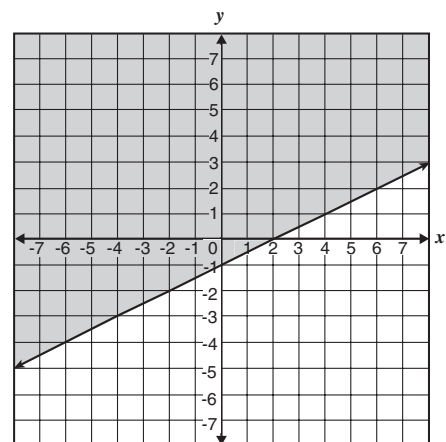
10

What is the y-intercept of the graph of $4x + 8y = -16$?

- A. -4
- B. 4
- C. -2
- D. 2

11

Which inequality is shown on the graph below?



- A. $y > \frac{1}{2}x - 1$
- B. $y \geq \frac{1}{2}x - 1$
- C. $y < \frac{1}{2}x + 1$
- D. $y \leq \frac{1}{2}x + 1$

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What is the equation of the line that has a slope of -3 and passes through the point $(2, -4)$?

- A. $y = -3x + 5$
- B. $y = -3x - 5$
- C. $y = -3x + 2$
- D. $y = -3x - 2$

13

The equation of line l is $y = 3x + 5$, and the equation of line q is $-9x + 3y = 14$. Which statement about the two lines is true?

- A. Lines l and q have the same y -intercept.
- B. Lines l and q are parallel.
- C. Lines l and q have the same x -intercept.
- D. Lines l and q are perpendicular.

14

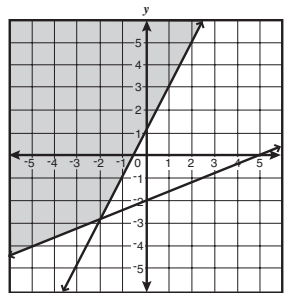
Which equation represents a line that is perpendicular to $y = -4x + 2$?

- A. $y = 4x + 5$
- B. $y = -4x + 5$
- C. $y = -1/4x + 5$
- D. $y = 1/4x + 5$

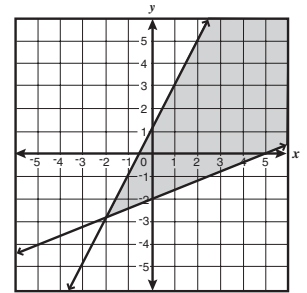
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Which graph *best* represents the solution to this system of inequalities?

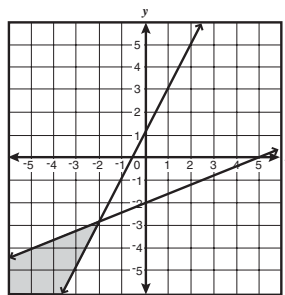
$$\begin{cases} 2x \geq y - 1 \\ 2x - 5y \leq 10 \end{cases}$$



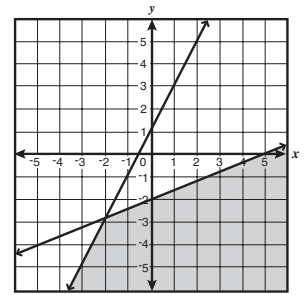
A



C



B



D

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16

What is the solution to this system of equations?

$$\begin{cases} y = 6x + 4 \\ -6x + 2y = 14 \end{cases}$$

- A. (6, 2)
- B. (1, 10)
- C. no solution
- D. infinitely many solutions

17

$$\frac{6x^2y^4}{3x^2y^2} =$$

- A. $2y^2$
- B. $\frac{1}{2y^2}$
- C. $3x^2$
- D. $\frac{1}{3x^2}$

18

$$(6x^2 - 4x + 7) - (x^2 + 2x - 3) =$$

- A. $5x^2 - 2x + 4$
- B. $5x^2 - 6x + 10$
- C. $5x^2 - 6x + 4$
- D. $5x^2 - 2x + 10$

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What is the factored form of $2x^2 + 25xy + 50y^2$?

- A. $(2x + 5y)(x + 5y)$
- B. $(x + 5y)(2x + 10y)$
- C. $2(x + 5y)(x + 5y)$
- D. $2(x + 5y)(x - 5y)$

20

Which is a factor of $x^2 - x - 30$?

- A. $(x + 5)$
- B. $(x - 5)$
- C. $(x + 4)$
- D. $(x - 4)$

21

If x^2 is added to $2x$, the sum is 15. Which of the following could be the value of x ?

- A. 5
- B. 4
- C. 3
- D. 2

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What are the solutions to the quadratic equation,

$$x^2 - 7x = -10?$$

- A. 2, 5
- B. -2, -5
- C. 3, 5
- D. -3, -5

23

Katherine is deriving the quadratic formula by completing the square. She starts off with the following equation:

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

Her first step gives her the following:

$$ax^2 + bx = -c.$$

What should be the result of her second step?

A. $x^2 = -c - bx$

B. $x^2 + \frac{b}{a}x + \frac{b}{2a} = -\frac{c}{a} + \frac{b}{2a}$

C. $\frac{x^2}{b} + x = \frac{-c}{b}$

D. $x^2 + \frac{b}{a}x = \frac{-c}{a}$

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Which is one of the solutions to the equation, $2x^2 - x - 5 = 0$?

A. $\frac{1}{4} - \sqrt{41}$

B. $1 - \frac{\sqrt{41}}{4}$

C. $\frac{1 + \sqrt{41}}{4}$

D. $4 + \sqrt{41}$

25

Which statement *best* explains why there has one real solution to the quadratic equation, $x^2 - 6x + 9 = 0$?

- A. The value of $(-6)^2 - 4(1)(9)$ is *positive*.
- B. The value of $(-6)^2 - 4(1)(9)$ is *zero*.
- C. The value of $(-6)^2 - 4(1)(9)$ is *negative*.
- D. The value of $(-6)^2 - 4(1)(9)$ is a *perfect square*.

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What is the solution set of the quadratic equation $8x^2 + 4x + 1 = 0$?

A. no real solutions

B. $\{2 + 3\sqrt{5}, 2 - 3\sqrt{5}\}$

C. $\left\{\frac{1 + 3\sqrt{5}}{2}, \frac{1 - 3\sqrt{5}}{2}\right\}$

D. $\{2 + 5\sqrt{3}, 2 - 5\sqrt{3}\}$

27

$$\frac{5x^2 - 5x}{5x + 15} \cdot \frac{x^2 - 9}{x^2 + 4x - 5}$$

A. $\frac{(x - 3)}{(x + 5)}$

B. $\frac{(x - 3)}{5(x + 5)}$

C. $\frac{x(x - 3)}{(x + 5)}$

D. $\frac{(x + 3)}{(x - 5)}$

28

A pharmacist mixed some 10%-saline solution with some 20%-saline solution to obtain 200 mL of a 16%-saline solution. How much of the 20%-saline solution did the pharmacist use in the mixture?

A. 110 mL

B. 130 mL

C. 90 mL

D. 120 mL

29

A painter's apprentice can paint a house in 9 hours, a master painter can paint the same house in 6 hours. How long will it take both of them working together to paint the house?

A. 3 hours

B. $3\frac{3}{5}$ hours

C. 4 hours

D. $4\frac{2}{5}$ hours

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Maria's average driving speed for a 4-hour trip was 55 miles per hour. During the first 3 hours she drove 60 miles per hour. What was his average speed for the last hour of her trip?

- A. 30 miles per hour
- B. 35 miles per hour
- C. 40 miles per hour
- D. 45 miles per hour

31

Which relation is *not* a function?

- A. $\{(1, 3), (2, 4), (3, 5), (4, 6)\}$
- B. $\{(1, 5), (4, 2), (0, 7), (1, 3)\}$
- C. $\{(-2, 4), (-1, 1), (2, 4), (1, 1)\}$
- D. $\{(3, 3), (4, 4), (5, 5), (6, 6)\}$

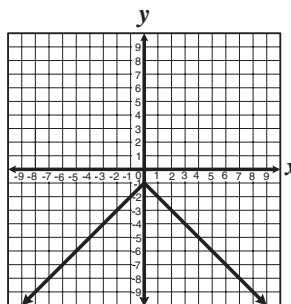
32

What is the value of, $f(-3)$, for the function $f(x) = 2x^2 - 5x + 11$?

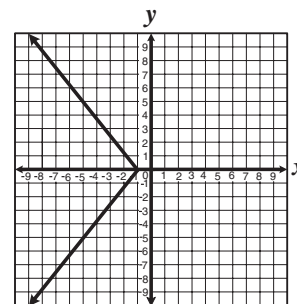
- A. $f(-3) = 11$
- B. $f(-3) = 29$
- C. $f(-3) = 8$
- D. $f(-3) = 44$

33

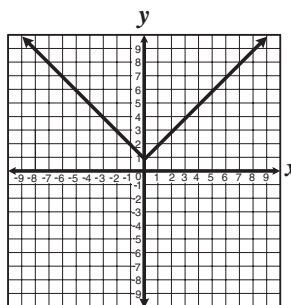
For which equation graphed below are all the y-values positive?



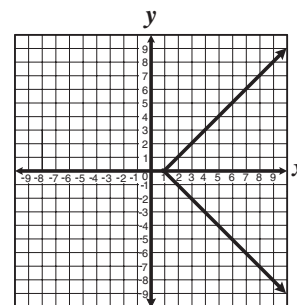
A



C



B

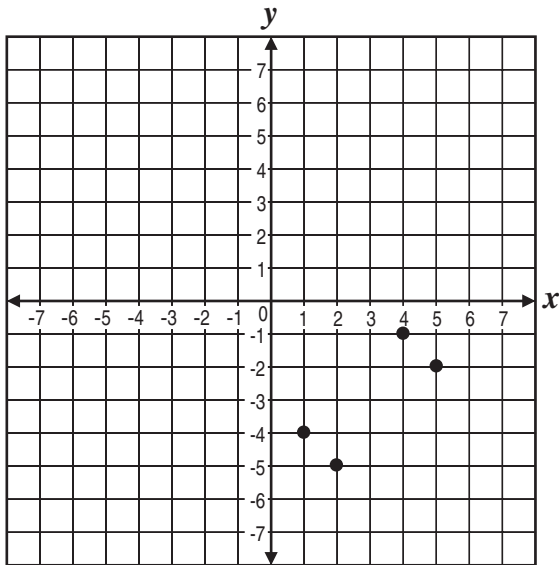


D

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What is the range of the function below?



- A. $\{-1, -2, -3, -4, \}$
- B. $\{-1, -2, -4, -5\}$
- C. $\{1, 2, 3, 4\}$
- D. $\{1, 2, 4, 5\}$

35

An object that is projected straight downward with an initial velocity v feet per second travels a distance $s = vt + 16t^2$, where $t =$ time in seconds. Freddy is on top of a building 304 feet tall and throws a penny straight down with an initial velocity of 12 feet per second, in how many seconds will it reach the ground?

- A. 2 seconds
- B. 3 seconds
- C. 4 seconds
- D. 5 seconds



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Question	Answer
1	A
2	A
3	B
4	A
5	D
6	A
7	C
8	A
9	D
10	C
11	B
12	C
13	B
14	D
15	C
16	B
17	A
18	B
19	B
20	A
21	C
22	A
23	D
24	C
25	B
26	A
27	B
28	D
29	B
30	C
31	B
32	D
33	B
34	B
35	C