

Rising 11th Graders

YOU MUST SHOW ALL YOUR WORK

Name: _____

1. What is the solution for the following system of equations?

$$\begin{aligned} 2x + y &= 7 \\ x - 2y &= 6 \end{aligned}$$

- A. (3, 1) B. (1, 3)
C. (-1, 4) D. (4, -1)

2. Which ordered pair is the solution to this system of equations?

$$\begin{aligned} y &= x + 4 \\ x + y &= 2 \end{aligned}$$

- A. (1, 5) B. (0, 2)
C. (-1, 3) D. (-4, 0)

3. Which ordered pair is the solution of this system of equations

$$\begin{aligned} 3x + 2y &= 4 \\ -2x + 2y &= 24 \end{aligned}$$

- A. (-4, 8) B. (-4, -8)
C. (2, -1) D. (2, -5)

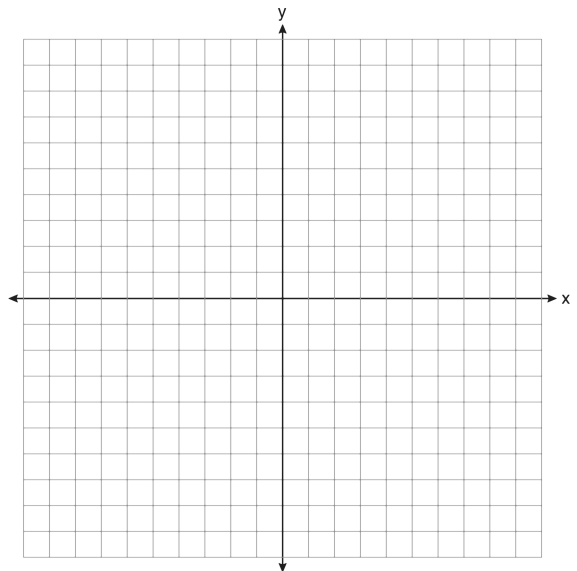
4. When solved graphically, which system of equations will have *exactly* one point of intersection?

- A. $y = -x - 20$ B. $y = 0.5x + 30$
 $y = x + 17$ $y = 0.5x - 30$
C. $y = \frac{3}{5}x + 12$ D. $y = -x + 15$
 $y = 0.6x - 19$ $y = -x + 25$

5. On the set of axes below, solve the following system of equations graphically. State the coordinates of the solution.

$$y = 4x - 1$$

$$2x + y = 5$$



6. Solve for x : $5x - 21 = 8x - 30$

7. Solve for x : $7(x - 2) = 5(x + 4)$

8. What is the value of x in the equation $4(2x + 1) = 27 + 3(2x - 5)$?

- A. 21 B. 9 C. $7\frac{1}{2}$ D. 4

9. If x and y are defined as indicated by the accompanying table, which equation correctly represents the relationship between x and y ?

x	y
2	1
3	3
5	7
7	11

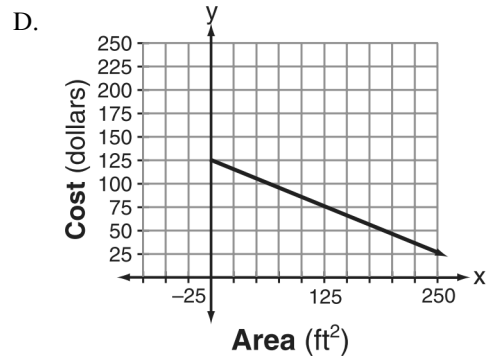
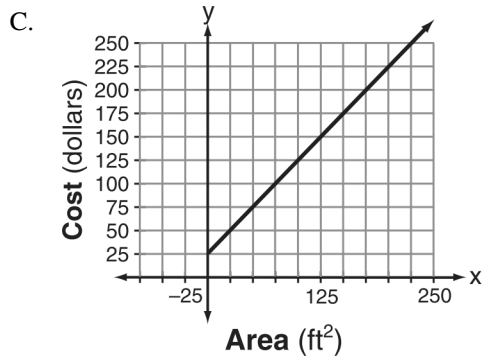
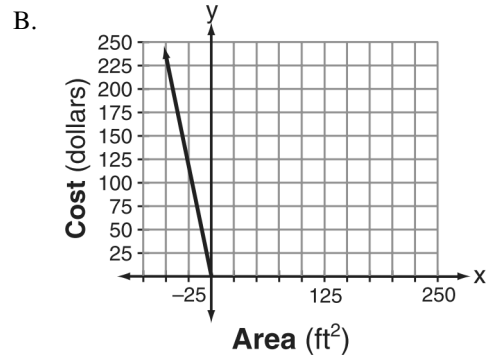
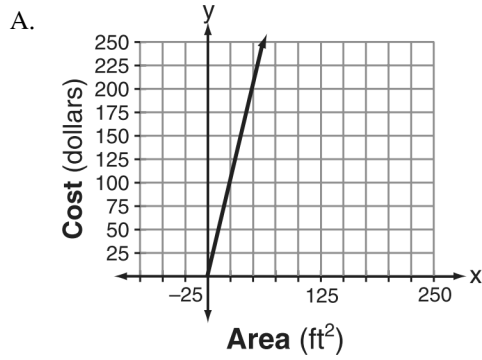
- A. $y = x + 2$ B. $y = 2x + 2$
C. $y = 2x + 3$ D. $y = 2x - 3$

10. Which linear equation represents the data in the accompanying table?

c	d
0	20.00
1	21.50
2	23.00
3	24.50

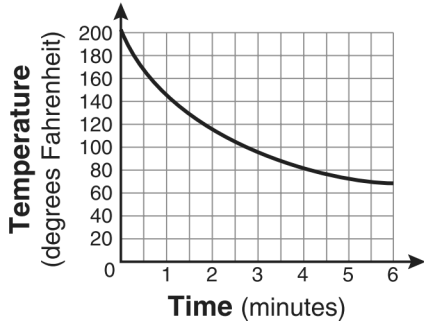
- A. $d = 1.50c$ B. $d = 1.50c + 20.00$
C. $d = 20.00c + 1.50$ D. $d = 21.50c$

11. Super Painters charges \$1.00 per square foot plus an additional fee of \$25.00 to paint a living room. If x represents the area of the walls of Francesca's living room, in square feet, and y represents the cost, in dollars, which graph best represents the cost of painting her living room?

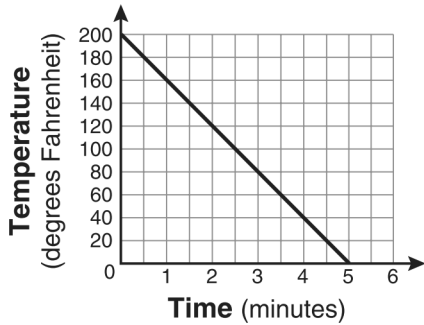


12. Antwaan leaves a cup of hot chocolate on the counter in his kitchen. Which graph is the best representation of the change in temperature of his hot chocolate over time?

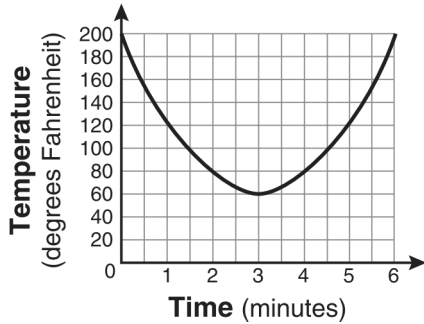
A.



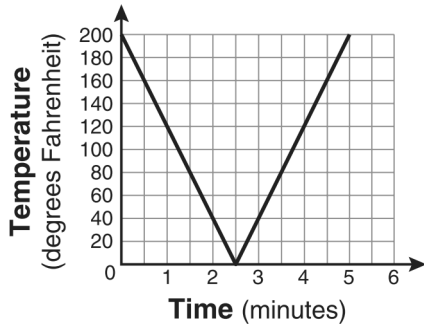
B.



C.



D.



13. Which relation is *not* a function?

- A. $(x - 2)^2 + y^2 = 4$ B. $x^2 + 4x + y = 4$
 C. $x + y = 4$ D. $xy = 4$

14. The solution of $|3x - 2| < 4$ is

- A. $-\frac{2}{3} < x < 2$ B. $x < 2$
 C. $x > -\frac{2}{3}$ D. $x < -\frac{2}{3}$ or $x > 2$

15. The expression $\frac{(10w^3)^2}{5w}$ is equivalent to

- A. $2w^5$ B. $2w^8$ C. $20w^5$ D. $20w^8$

16. Which expression is equivalent to x^{-4} ?

- A. $\frac{1}{x^4}$ B. x^4 C. $-4x$ D. 0

17. The sum of $\sqrt{12}$ and $5\sqrt{3}$ is

- A. $10\sqrt{3}$ B. $7\sqrt{6}$ C. $7\sqrt{3}$ D. 360

18. The statement “ n is even and a perfect square” is true when n equals

- A. 1 B. 18 C. 25 D. 4

19. The statement “The sum of twice a number and 18 is greater than 25” can be expressed as

- A. $2n + 18 = 25$ B. $2(n + 18) > 25$
C. $2(n + 18) > 50$ D. $2n + 18 > 25$

20. Which equation could be used to solve the problem below?

If three times a number is increased by 24, the result is 4 less than seven times the number.

- A. $3(x + 24) = 7x - 4$ B. $3x + 24 = 4 - 7x$
C. $3x + 24 = 7x - 4$ D. $27x = 7x - 4$

21. Cedric and Zelda went shopping at Price Buster. Cedric bought 2 jumbo rolls of aluminum foil and 3 packages of AA batteries for a total cost of \$21. Zelda bought 5 identical jumbo rolls of aluminum foil and 2 identical packages of AA batteries for a total cost of \$25. Find the cost of 1 roll of aluminum foil and find the cost of 1 package of AA batteries. [Only an algebraic solution will be accepted.]

22. The square of a positive number decreased by 4 times the number is 12. Find the positive number. [Only an algebraic solution will be accepted.]

23. Express as a trinomial: $(2x - 3)(x + 4)$

24. Factor: $x^2 - 6x - 7$

25. Written in factored form, the binomial $a^2b - ab^2$ is equivalent to

- A. $ab(a - b)$ B. $(a - b)(a + b)$
C. $a^2(b - b^2)$ D. $a^2b^2(b - a)$