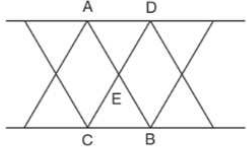


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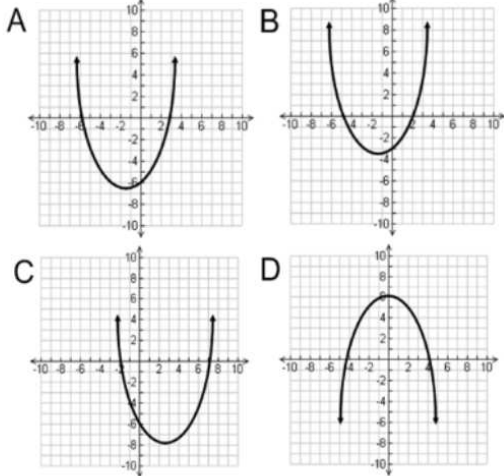
The support beams on a bridge intersect in the pattern shown in the accompanying diagram. If  $AB$  and  $CD$  intersect at point  $E$ ,  $m\angle AED = 3x + 30$ , and  $m\angle CEB = 7x - 10$ , find the value of  $x$ .

1



2

Which is the graph of  $g(x) = -x^2 + x + 6$ ?



3

The length of a rectangular garden is three times the width,  $w$ . Farmer Robbins will increase both the length and the width of his garden this year by 5 feet. Which equation represents the new area,  $A$ , of his garden?

- A.  $w^2 + 20w + 10$     B.  $3w + 10$     C.  $3w^2 + 20w + 25$     D.  $w^2 + 10w + 15$

Francine and Arthur are both saving money for their vacation. The table below shows the models for the amount of money Francine and Arthur saved after  $x$  weeks.

4

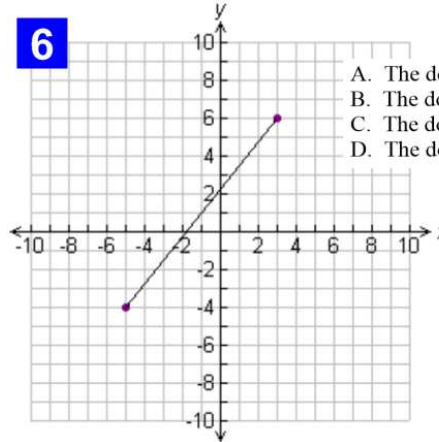
Francine	$f(x) = 6x + 10$
Arthur	$a(x) = 8x + 2$

After how many weeks will Francine and Arthur have the same amount of money? (A) 2 weeks (B) 3 weeks (C) 4 weeks (D) 5 weeks

5

For the function  $f(x) = 3x + 2$ , find  $x$  such that  $f(x) = 14$ .

6



- A. The domain consists of input values from -5 to 3.  
 B. The domain consists of input values from -4 to 6.  
 C. The domain consists of input values from -5 to 6.  
 D. The domain consists of input values from -4 to 3.

7

Which mathematical sentence represents the solution for  $d$  in the equation  $6e = ef + 3d$ ?

- A.  $d = \frac{6e - ef}{3}$     C.  $d = \frac{2e - ef}{3}$   
 B.  $d = \frac{6e + ef}{3}$     D.  $d = \frac{2e + ef}{3}$

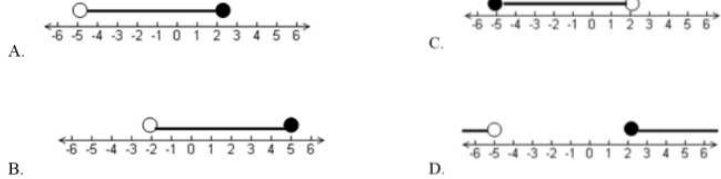
8

Determine the value of  $y$  for the system of equations.

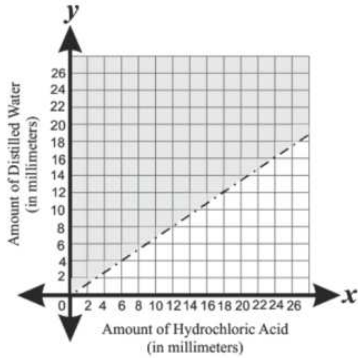
$$\begin{aligned} x - 3y &= 4 \\ 2x + y &= 8 \end{aligned}$$

Name \_\_\_\_\_

**9** Which graph represents the solution set for the compound inequality  $-3 \leq -2x + 1 < 11$ ?



**10** For a science experiment, Corrine is adding hydrochloric acid to distilled water. The relationship between the amount of hydrochloric acid,  $x$ , and the amount of distilled water,  $y$ , is graphed below.



Which inequality best represents this graph?

- A.  $2y - 3x < 0$
- B.  $3y - 2x < 0$
- C.  $2y - 3x > 0$
- D.  $3y - 2x > 0$

**11** Which point lies in the solution set for the following system of inequalities?

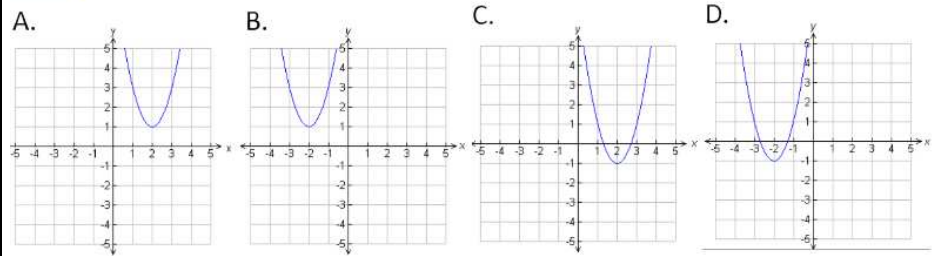
$$\begin{aligned} x - y &> 3 \\ x + 2y &< 6 \end{aligned}$$

- A. (7, 1)
- B. (3, 4)
- C. (-2, 2)
- D. (4, -2)

**12** A concert hall is in the shape of a rectangle. Its floor has a length of  $(x + 6)$  meters and a width of  $(2x - 3)$  meters. Write an expression to represent the area of the concert hall as a trinomial.

- 13** Which of the following is equivalent to  $16a^2 - 49$ ?
- A.  $(4a - 7)(4a - 7)$
  - B.  $(4a + 7)(4a - 7)$
  - C.  $(7 - 4a)(7 - 4a)$
  - D.  $(7 + 4a)(7 - 4a)$

**14** Which of these graphs show the quadratic function  $y = 2x^2 + 8x + 7$ ?



**15** Find the zeros for the equation:  $3x^2 - 16x + 5 = 0$