

Name: KEY

Unit 5 Review

1. There are 9 books stacked on a shelf. The thickness of each book is either 1 inch or 2 inches. The height of the stack of 9 books is 14 inches. Which system of equations can be used to determine x, the number of 1-inch-thick books in the stack, and y, the number of 2-inch-thick books?

F $x + y = 14$

$2x + y = 9$

G $x + y = 14$

$x + 2y = 9$

H $x + y = 9$

$x + 2y = 14$

J $x + y = 9$

$2x + y = 14$

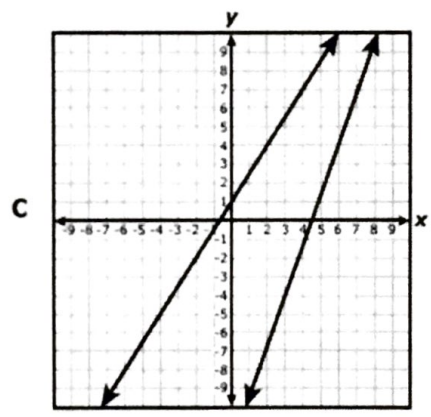
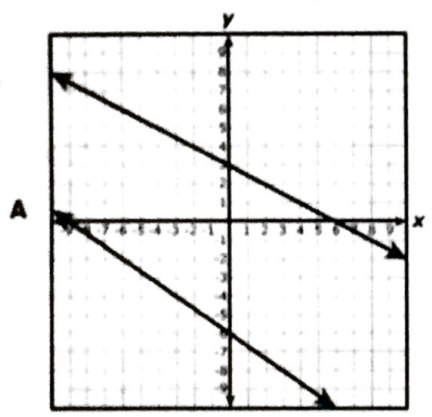
$x + 2y = 14$

$x = 1\text{-inch}$

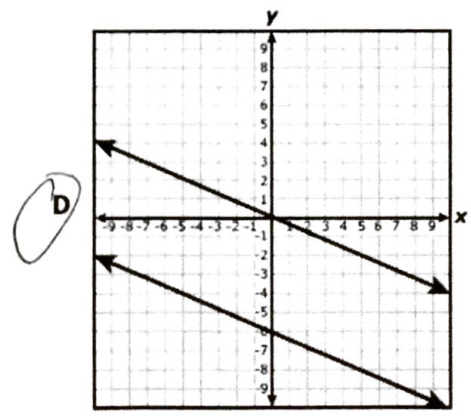
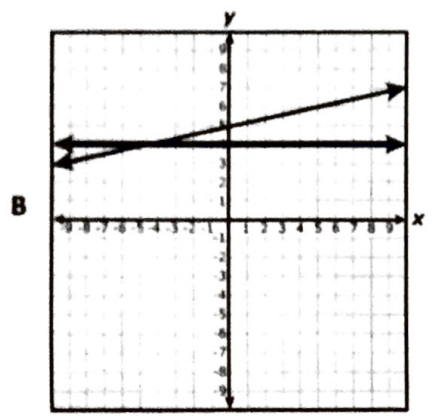
$x + y = 9$

$y = 2\text{-inch}$

2. Which of the following graphs best represents a system of equations that has no solution?



↕↕
Parallel



3. A college student needs 11 classes that are worth a total of 40 credits in order to complete her degree. The college offers both 4-credit classes and 3-credit classes. Which system of equations can be used to determine f, the number of 4-credit classes the student can take to complete her degree, and h, the number of 3-credit classes?

F $f+h=40$
 $4h+3f=11$

$$f+h=11$$

f - 4 credit

G $f+h=11$
 $4h+3f=40$

$$4f+3h=40$$

h - 3 credit

H $f+h=40$
 $4f+3h=11$

J $f+h=11$
 $4f+3h=40$

4. The owner of a clothing store buys T-shirts for c dollars each and sells them for p dollars each. Last month she bought 600 T-shirts and sold 500 of them and made a profit of \$2,800. This month she bought 400 T-shirts and sold them all and made a profit of \$2,400. Which system of equations can be used to determine the values of c and p?

A $500p-600c=2,800$
 $400p-400c=2,400$

c - buy

B $600p-500c=2,800$
 $400p-400c=2,400$

p = sell

$$500p - 600c = 2800$$

C $500p-600c=2,800$
 $400p-c=2,400$

$$400p - 400c = 2400$$

D $600p-500c=2,800$
 $400p-c=2,400$

5. A college football team scored 12 times in a game, for a total of 72 points. Each touchdown is worth seven points and each field goal is worth three points. Which system of equations below could be used to solve for x, the number of points the team scored from touchdowns, and y, the number of points the team scored from field goals?

F $x+y=12$
 $7x+3y=72$

G $x+y=72$
 $7x+3y=12$

x - touchdown pts.

H $x+y=12$

y - field pts.

J $\frac{x}{7} + \frac{y}{3} = 72$
 $\frac{x}{7} + \frac{y}{3} = 12$

$$x + y = 72$$

$\frac{x}{7} + \frac{y}{3} = 12$

$$\frac{x}{7} + \frac{y}{3} = 12$$

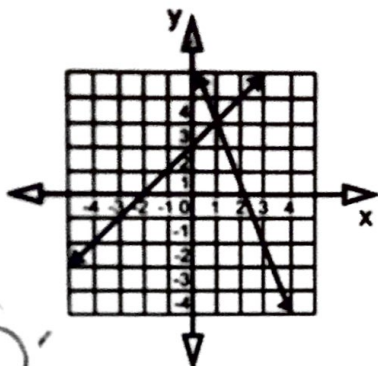
6. Which of these graphs below represents the correct solution to the following system of equations?

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

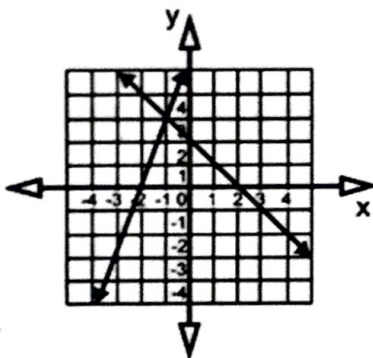
$$y = x + 2$$

$$y = -3x + 6$$

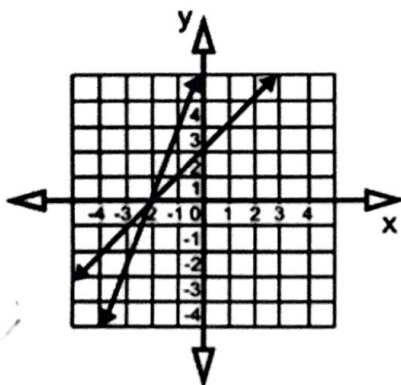
F.



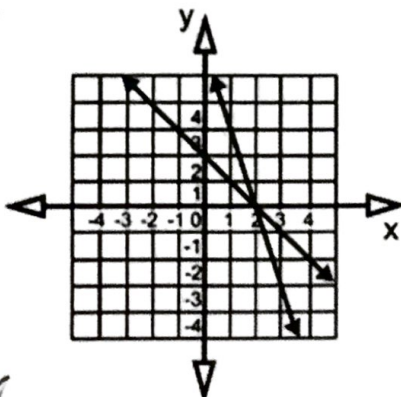
G.



~~**H.**~~



J.



$$3x + 2y = 12$$

$$y = x + 1$$

Which ordered pair below represents the solution to this system of equations?

F (1.25, 2.25)

G (2, 3)

H (2.2, 3.2)

J (3, 2)

$$3x + 2(x+1) = 12$$

$$3x + 2x + 2 = 12$$

$$5x + 2 = 12$$

$$x = 2$$

8. The following system of equations is shown below.

$$2x + 3y = 4$$

$$2(x - y) = -3$$

$$2x + 3y = 4$$

$$-2x - 2y = -6$$

Which of the below is the solution to this system?

A (-13, 10)

B (-1, 2)

C (1, -2)

D (2, 3)

$$5y = 10$$

$$y = 2$$

9. Which of the following is the solution to this system of equations below?

$$\begin{cases} 2x + y = 4 \\ 4x - y = 8 \end{cases}$$

F (0, 2)

G (4, 8)

H (2, 0)

J (8, 4)

$$6x = 12$$

$$x = 2$$

10. What is the solution to the following system of equations?

$$3 \begin{cases} 2x + 3y = 24 \\ 6x + 9y = 36 \end{cases}$$

$$\begin{array}{r} 6x + 9y = 72 \\ - 6x + 9y = 36 \\ \hline 0 = 36 \end{array}$$

F (3,6)

G (21, -6)

H All real numbers

J No real solution

11. One wall inside a shoe store is used to display walking shoes and running shoes. There are 135 pairs of shoes in this display. There are 1.5 times as many pairs of walking shoes as there are running shoes on display. How many pairs of walking shoes and running shoes are on display?

A 90 pairs of walking shoes and 45 pairs of running shoes

B 54 pairs of walking shoes and 81 pairs of running shoes

C 45 pairs of walking shoes and 90 pairs of running shoes

D 81 pairs of walking shoes and 54 pairs of running shoes

$$\begin{aligned} x &= \text{walk} \\ y &= \text{run} \end{aligned}$$

$$x + y = 135$$

$$x = 1.5y$$

$$\frac{2.5y}{2.5} = \frac{135}{2.5}$$

12. What is the value of x in the solution to this system of equations?

$$3x = 2y + 14$$

$$y = -6x + 18$$

A $\frac{10}{3}$

B -2

C 2

D $-\frac{10}{3}$

$$3x = 2(-6x + 18) + 14$$

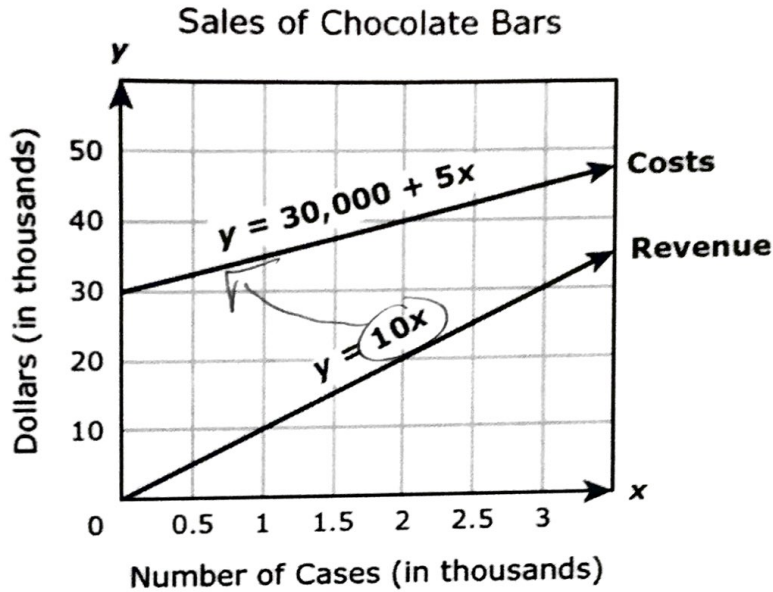
$$3x = -12x + 36 + 14$$

$$\frac{15x}{15} = \frac{50}{15}$$

$$x = \frac{10}{3}$$

13.

A candy company sells cases of chocolate bars. The company has fixed costs of \$30,000, and each case of chocolate bars costs an additional \$5 to make. The company sells each case for \$10. The graph of a system of linear equations representing this company's costs and revenue for manufacturing and selling x cases of chocolate bars is shown below.



How many cases of chocolate bars will this company need to sell in order for costs and revenue to be equal?

A 3,500

B 6,000

C 35,000

D 60,000

$$10x = 30000 + 5x$$

$$-5x \quad \quad -5x$$

$$\frac{5x}{5} = \frac{30000}{5}$$

$$x = 6000$$

14. At a firefighters' pancake breakfast, the firefighters served 345 people and raised \$1395. If the cost of a , an adult's ticket to the pancake breakfast, was \$5 and the cost of c , a child's ticket, was \$3, what was the number of adult tickets sold?

F 165

G 180

H 279

J 345

$$3(a + c = 345)$$

$$3a + 3c = 1395$$

$$5a + 5c = 1725$$

$$-2c = -470$$

$$a = \text{adult} + \$5$$

$$c = \text{child} + \$3$$

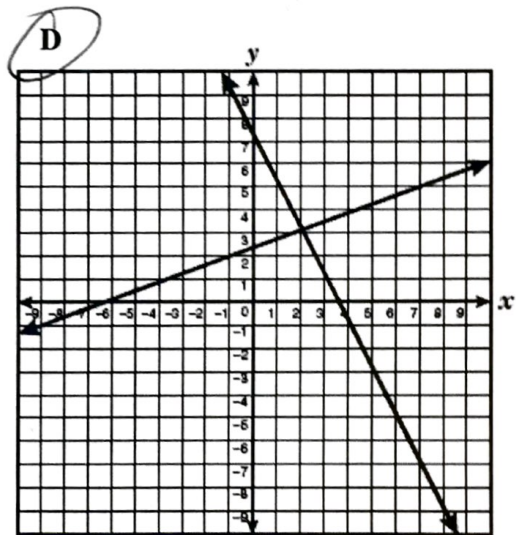
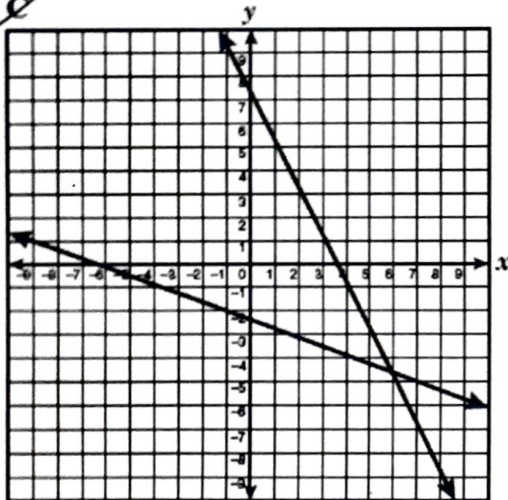
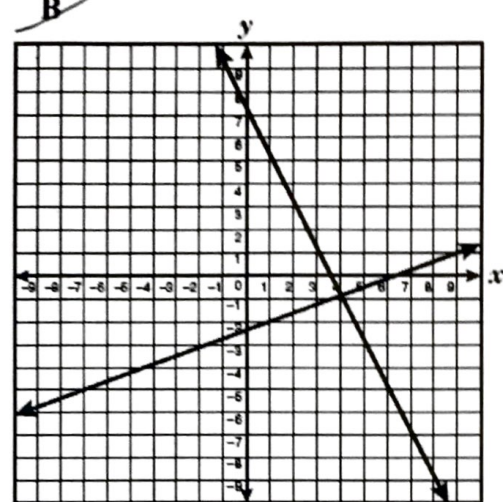
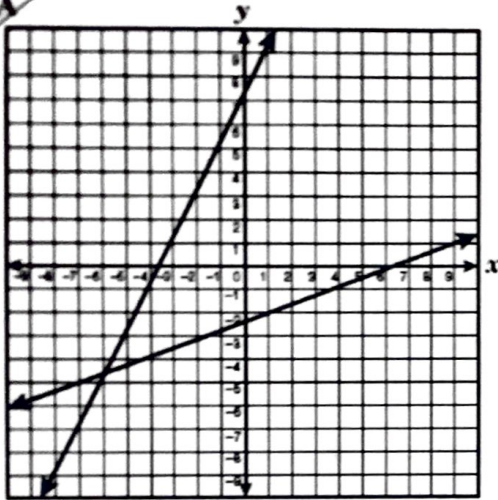
15. Which of the following best represents the solution to the system of linear equations shown below?

$$3x - 8y = -19$$

$$6x + 3y = 22$$

$$y = \frac{3}{8}x + \frac{19}{8}$$

$$y = -2x + \frac{22}{3}$$



16. What is the x-coordinate of the solution to the system of linear equations below?

$$(4x + 5y = 8)$$

$$(2x - 3y = -18)$$

$$4x + 5y = 8$$

$$4x - 6y = -36$$

F -4

G -3

H 3

J 4

$$4x + 5(4) = 8$$

$$4x + 20 = 8$$

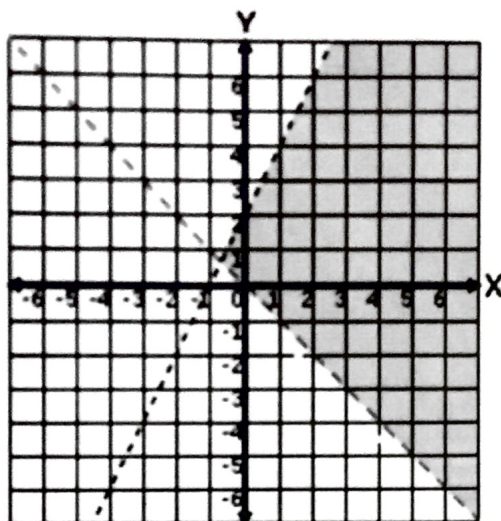
$$4x = -12$$

$$x = -3$$

$$11y = 44$$

$$y = 4$$

17. Choose the system of inequalities that best matches the graph below.



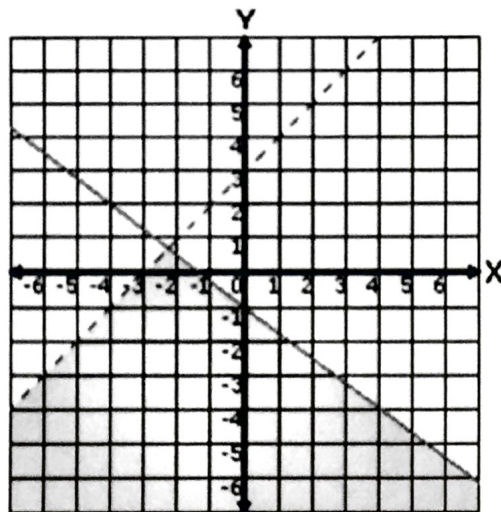
~~A.~~ $y < 2x + 2$
 $y < x$

~~C.~~ $y \leq x - 2$
 $y > -x$

~~B.~~ $y < 2x$
 $y \leq x$

D. $y < 2x + 2$
 $y > -x$

18. Choose the system of inequalities that best matches the graph below.



~~A.~~ $y < -x - 3$
 $y < -3x + 4$

~~C.~~ $y \leq -x + 3$
 $y \geq \frac{3}{4}x + 1$

B. $y < x + 3$
 $y \leq \frac{3}{4}x - 1$

~~D.~~ $y < -x - 3$
 $y \leq 4x - 3$

19. Graph:

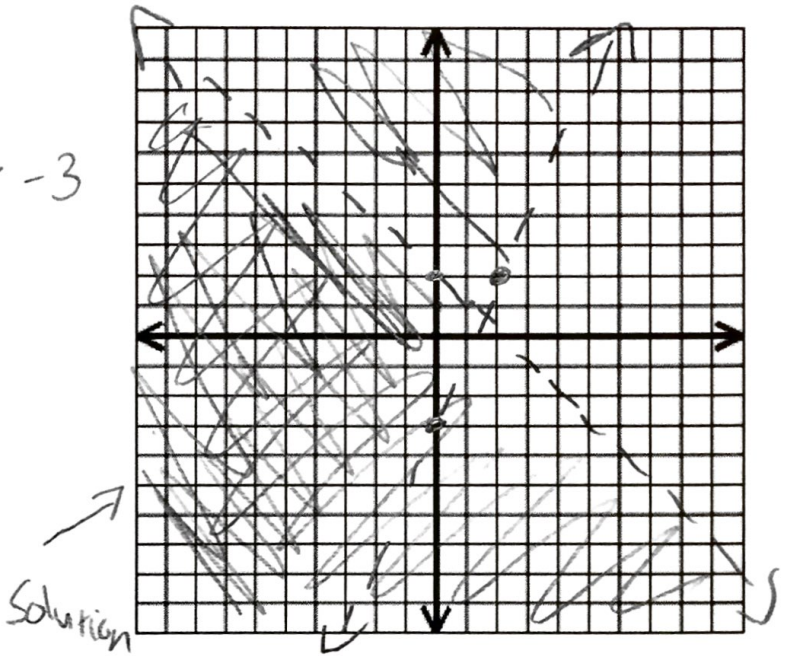
$$y < -x + 2$$

$$5x - 2y < 6$$

$$y > \frac{5}{2}x - 3$$

Determine which point is in the solution set of this system of inequalities.

- A. (1, 4)
- B. (3, -6)
- C. (5, 2)
- D. (-3, -7)**



20. Graph:

$$y \leq 2x + 3$$

$$y < -x + 1$$

Determine which point is not in the solution set of this system of inequalities.

- A. (0, 0)**
- B. (-2, -1)
- C. (2, 7)
- D. (-1, -4)

