

Lesson 12 Practice Problems

1. The knitting club sold 40 scarves and hats at a winter festival and made \$700 from the sales. They charged \$18 for each scarf and \$14 for each hat.

If s represents the number of scarves sold and h represents the number of hats sold, which system of equations represents the constraints in this situation?

A.
$$\begin{cases} 40s + h = 700 \\ 18s + 14h = 700 \end{cases}$$

B.
$$\begin{cases} 18s + 14h = 40 \\ s + h = 700 \end{cases}$$

C.
$$\begin{cases} s + h = 40 \\ 18s + 14h = 700 \end{cases}$$

D.
$$\begin{cases} 40(s + h) = 700 \\ 18s = 14h \end{cases}$$

2. Here are two equations:

Equation 1: $6x + 4y = 34$

Equation 2: $5x - 2y = 15$

- a. Decide whether each (x, y) pair is a solution to one equation, both equations, or neither of the equations.

i. $(3, 4)$

ii. $(4, 2.5)$

iii. $(5, 5)$

iv. $(3, 2)$

- b. Is it possible to have more than one (x, y) pair that is a solution to both equations? Explain or show your reasoning.

3. Explain or show that the point (5, -4) is a solution to this system of equations:

$$\begin{cases} 3x - 2y = 23 \\ 2x + y = 6 \end{cases}$$

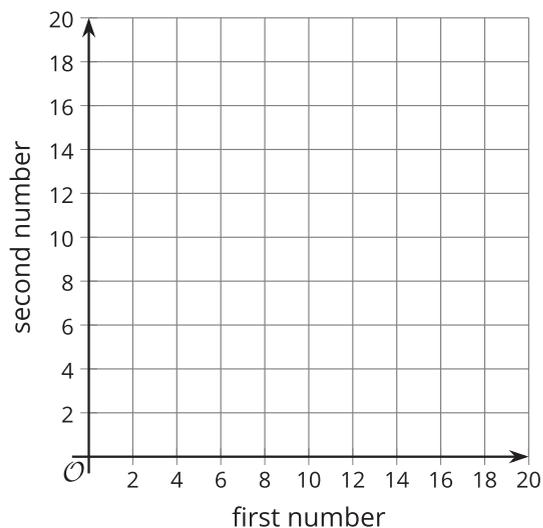
4. Diego is thinking of two positive numbers. He says, "If we triple the first number and double the second number, the sum is 34."

a. Write an equation that represents this clue. Then, find two possible pairs of numbers Diego could be thinking of.

b. Diego then says, "If we take half of the first number and double the second, the sum is 14."

Write an equation that could represent this description.

c. What are Diego's two numbers? Explain or show how you know. A coordinate plane is given here, in case helpful.



5. The table shows the volume of water in a tank after it has been filled to a certain height.

height of water (inches)	volume of water (cubic inches)
0	0
1	1.05
2	8.40
3	28.35

Which equation could represent the volume of water in cubic inches, V , when the height is h inches?

- A. $h = V$
- B. $h = \frac{V}{4}$
- C. $V = h^2 + 0.05$
- D. $V = 1.05h^3$

(From Unit 2, Lesson 4.)

6. Andre does not understand why a solution to the equation $3 - x = 4$ must also be a solution to the equation $12 = 9 - 3x$.

Write a convincing explanation as to why this is true.

(From Unit 2, Lesson 7.)

7. Volunteer drivers are needed to bring 80 students to the championship baseball game. Drivers either have cars, which can seat 4 students, or vans, which can seat 6 students. The equation $4c + 6v = 80$ describes the relationship between the number of cars c and number of vans v that can transport exactly 80 students.

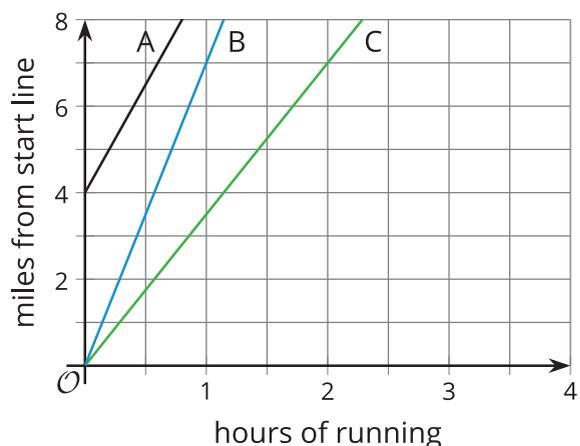
Explain how you know that this graph represents this equation.



(From Unit 2, Lesson 10.)

8. Three siblings are participating in a family-friendly running event.

- The oldest sibling begins at the start line of the race and runs 7 miles per hour the entire time.
- The middle sibling begins at the start line and walks at 3.5 miles per hour throughout the race.
- The youngest sibling joins the race 4 miles from the start line and runs 5 miles per hour the rest of the way.



Match each graph to the sibling whose running is represented by the graph.

A. Oldest Sibling

1. Graph A

B. Middle Sibling

2. Graph B

C. Youngest Sibling

3. Graph C

(From Unit 2, Lesson 11.)

9. What is the x -intercept of the graph of $y = 3 - 5x$?

A. $(\frac{3}{5}, 0)$

B. $(-5, 0)$

C. $(0, 3)$

D. $(0, \frac{5}{3})$

(From Unit 2, Lesson 11.)