

## Domain #2: Expressions & Equations

(Relevant Units: Unit 2 – Equations, Unit 4 – Systems of Functions)

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Joe solved this linear system correctly.

$$6x + 3y = 6$$

$$y = -2x + 2$$

These are the last two steps of his work.

$$6x - 6x + 6 = 6$$

$$6 = 6$$

Which statement about this linear system must be true?

- Ⓐ  $x$  must equal 6
- Ⓑ  $y$  must equal 6
- Ⓒ There is no solution to this system.
- Ⓓ There are infinitely many solutions to this system.

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Drag a number into each box to create an equation that has no solution.

0  
1  
2  
3  
4  
5  
6  
7  
8  
9

Delete

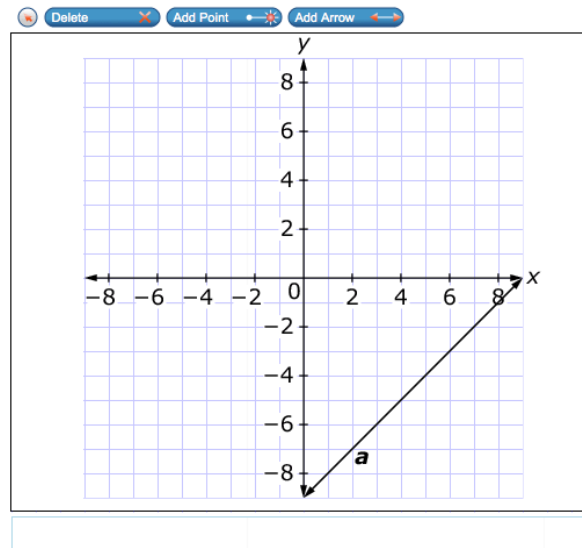
Block...

$$8x - 3x + 2 - x = \square x + \square$$

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Line  $a$  is shown on the graph. Use the Add Arrow tool to construct line  $b$  on the graph so that:

- Line  $a$  and line  $b$  represent a system of linear equations with a solution of  $(7, -2)$ .
- The slope of line  $b$  is greater than  $-1$  and less than  $0$ .
- The  $y$ -intercept of line  $b$  is positive.



Consider this equation.

$$c = ax - bx$$

Joseph claims that if  $a$ ,  $b$ , and  $c$  are non-negative integers, then the equation has exactly one solution for  $x$ .

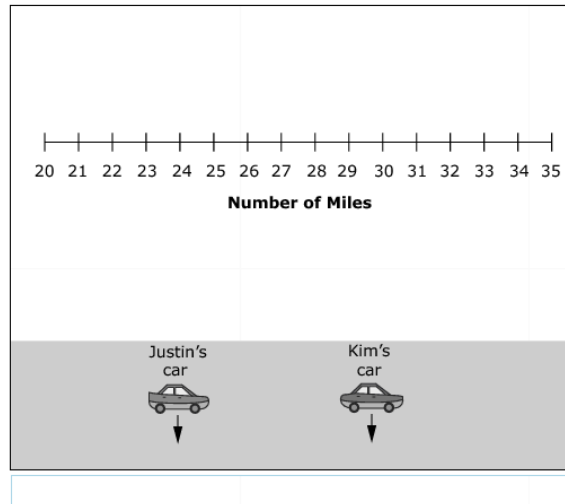
Select **all** cases that show Joseph's claim is **incorrect**.

- $a - b = 1, c = 0$
- $a = b, c \neq 0$
- $a = b, c = 0$
- $a - b = 1, c \neq 1$
- $a \neq b, c = 0$

Justin's car can travel  $77\frac{1}{2}$  miles  
with  $3\frac{1}{10}$  gallons of gas.

Kim's car can travel  $99\frac{1}{5}$  miles  
with  $3\frac{1}{5}$  gallons of gas.

Drag the cars to the number line  
to show the number of miles  
each car can travel with 1 gallon  
of gas.



Kyle was given the following problem to solve.

A company sells baseball gloves and bats. The gloves regularly cost \$30 and the bats regularly cost \$90. The gloves are on sale for \$4 off, and the bats are on sale for 10% off. The goal is to sell \$1200 worth of bats and gloves each week. Last week, the store sold 14 gloves and 9 bats.

Did the store meet its goal?

The steps Kyle used to solve the problem are shown. Select the first step that shows an error.

**Step 1:**

$$\begin{array}{r} \$30 \\ - \$4 \\ \hline \$26 \end{array}$$

**Step 2:**

$$\begin{array}{r} \$26 \\ \times 14 \\ \hline \$364 \end{array}$$

**Step 3:**

$$\begin{array}{r} \$90 \\ \div 0.9 \\ \hline \$100 \end{array}$$

**Step 4:**

$$\begin{array}{r} \$100 \\ \times 9 \\ \hline \$900 \end{array}$$

**Step 5:** Yes, the store met its goal.

$$\begin{array}{r} \$900 \\ + \$364 \\ \hline \$1264 \end{array}$$