Warm Up October 4, 2018

Comparing Methods to Solving Systems

Systems of equations can be solved by graphing, substitution, or elimination. However, there are situations where one method may be more sophisticated than another. Solve the following systems using the graphing, substitution, or elimination method. ***You may only use each method once.***

SYSTEM A **Method of Choice:** _____ Graphing X Substitution _____ Elimination

$x - y = -2$
$7x + 2y = -5$

① $x - y = -2$
$+y \quad +y$
$x = \boxed{y - 2}$

② $7(y-2) + 2y = 5$
$7y - 14 + 2y = 5$

③ $9y - 14 = -5$
$+14 \quad +14$
$\frac{9y}{9} = \frac{9}{9}$
$y = 1$

④ $x - y = -2$
$x - 1 = -2$
$+1 \quad +1$
$x = -1$

Solution: $(-1, 1)$

SYSTEM B **Method of Choice:** _____ Graphing _____ Substitution ___X___ Elimination

$8x + 5y = -13$
$3x + 4y = 10$

Solution: $(-6, 7)$

$4(8x+5y=-13)$
$5(3x+4y=10)$

$$(-)\begin{array}{r} 32x+20y=-52 \\ 15x+20y=50 \\ \hline \end{array}$$

$$\frac{17x}{17} = \frac{-102}{17}$$

$$x=-6$$

$$8(-6)+5y=-13$$
$$-48+5y=-13$$
$$+48 \quad +48$$

$$\frac{5y}{5} = \frac{35}{5}$$

$$y=7$$

SYSTEM C **Method of Choice:** X Graphing _____ Substitution _____ Elimination

$4x - 3y = 18$
$2x + y = 4$

Solution: $(3, -2)$

$$4x - 3y = 18$$
$$-4x \quad\quad -4x$$
$$\frac{-3y}{-3} = \frac{-4x}{-3} + \frac{18}{-3}$$
$$y = \frac{4}{3}x - 6$$

$$2x + y = 4$$
$$-2x \quad\quad -2x$$
$$y = -2x + 4$$

$$\begin{cases} 5x + 2y = -13 \\ 2(7x - y = -3) \end{cases}$$

$$\begin{array}{r} 5x + 2y = -13 \\ (+)\ 14x - 2y = -6 \\ \hline \end{array}$$

$$\frac{19x}{19} = \frac{-19}{19}$$

$$x = -1$$

$$7(-1) - y = -3$$

$$-7 - y = -3$$

$$\frac{-y}{-1} = \frac{4}{-1}$$

$$y = -4$$

$$3\begin{cases} (x + 2y = 6) \\ 3x - 4y = 18 \end{cases}$$

$$\begin{array}{r} 3x + 6y = 18 \\ (-)\ 3x - 4y = 18 \\ \hline \end{array}$$

$$\frac{10y}{10} = \frac{0}{10}$$

$$y = 0$$

$$x + 2(0) = 6$$

$$x = 6$$

$$(-)\begin{cases} 2x - y = 14 \\ 2x + y = -2 \end{cases}$$

$$\frac{-2y}{-2} = \frac{16}{-2}$$

$$y = -8$$

$$2x - 8 = -2$$

$$\begin{array}{r} +8 \quad +8 \\ \hline \end{array}$$

$$2x = 6$$

$$x = 3$$

Systems of Equations Triples Activity

No Solution.

(-2, -5)

(0, -3)

(-3,4)

(1, -7)

Infinite Solution

(9,2)

(8, 0)