

Systems of Equations Graphic Organizer

Name: 3rd period

Date: _____

Class Period: _____

Directions: Solve the system of equation using each method. Then determine which method you prefer, and why.

Types of systems	*plug in	Substitution
<p>One Solution: different slopes + y-int Final answer: $x=a$ $y=b$ (a,b)</p> <p>No solutions: Slope is same y-int is diff. Final answer: $a=b$</p> <p>infinitely many solutions: Same y-int and slope Final ans: $a=a$</p>	<p>$-4x + 2(3x+2) = 8$</p> <p>$-4x + 6x + 4 = 8$</p> <p>$2x + 4 = 8$</p> <p>$2x = 4$</p> <p>$x = 2$</p>	<p>$y = 3x + 2$ $-4x + 2y = 8$</p> <p>$y = 3(2) + 2$ $y = 6 + 2$ $y = 8$</p> <p>$(2, 8)$</p>

Elimination	Which method do you prefer and why?
<p>$y = 3x + 2$ $-4x + 2y = 8$</p> <p>$+4x \quad +4x$</p> <p>$(2, 8)$</p> <p>$y = 3(2) + 2$ $y = 8$</p> <p>$x = 2$</p>	<p>$y = 3x + 2$ $-4x + 2y = 8$</p> <p>$-2(y = 3x + 2)$ $2y = 4x + 8$</p> <p>$-2y = -6x - 4$ $+ 2y = 4x + 8$</p> <p>$0 = -2x + 4$</p> <p>$0 = -1x + 2$</p> <p>$-2 = -1x$ $-x = -2$</p>

Elimination steps

In the space below, write a system of equations that has no solution.

- 1) line up variable
- 2) opposite variable (change)
- 3) combine equations
- 4) solve for one variable
- 5) solve for other variable

Directions: Solve the system of equation using each method. Then determine which method you prefer, and why.

Types of systems

How many solutions does this equation have?
 $y = mx + b$
 one

$m = \frac{B}{A}$
 $a = \frac{b}{c}$
 $m = \text{slope}$
 $b = y\text{-int}$
 $y = mx + b$
 $m = \frac{7}{-3}$
 $a = \frac{7}{-3}$
 $b = -4$
 $d = \frac{1}{13}$
 $a = \frac{1}{13}$
 $b = -4$

Elimination

$$\begin{aligned} -3x + 7y &= 13 \\ 3x - 4y &= -1 \end{aligned}$$

$$Ax + By = C$$

$$\begin{aligned} -3x + 7y &= 13 \\ +3x - 4y &= -1 \\ \hline 11y &= 12 \\ y &= \frac{12}{11} \end{aligned}$$

$$\begin{aligned} 3x - 4(4) &= -1 \\ 3x - 16 &= -1 \\ 3x &= 15 \\ x &= 5 \end{aligned}$$

$$\begin{aligned} -3x + 7(4) &= 13 \\ -3x + 28 &= 13 \\ -3x &= -15 \\ x &= 5 \end{aligned}$$

$$(5, 4)$$

$$(5, 4)$$

Which method do you prefer and why?

Substitution *variable alone

$$\begin{aligned} -3x + 7y &= 13 \\ 3x - 4y &= -1 \end{aligned}$$

$$\begin{aligned} 3x &= -1 + 4y \\ \frac{3}{3}x &= \frac{-1 + 4y}{3} \\ x &= -\frac{1}{3} + \frac{4}{3}y \end{aligned}$$

$$\begin{aligned} -3\left(-\frac{1}{3} + \frac{4}{3}y\right) + 7y &= 13 \\ 1 - 4y + 7y &= 13 \\ 1 + 3y &= 13 \\ 3y &= 12 \\ y &= 4 \end{aligned}$$

Suppose you add two linear equations that form a system, and you get the results below. How many solutions does each system have (one solution, no solutions, or infinitely many solutions)?

a) $x = 8$

b) $0 = 4$

c) $0 = 0$