Warm Up 11/19/18

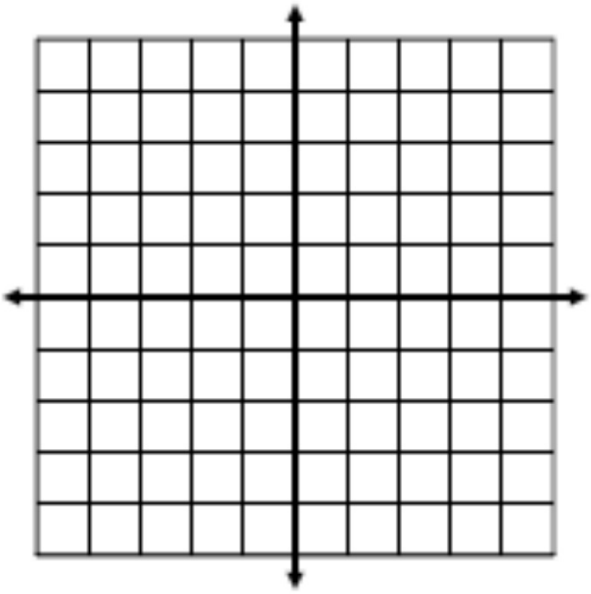
Complete the "Entrance Ticket" from the stool

1) Describe the three possible solutions to a system of equations.

Solve the following systems of equations by graphing:

2) $3x + 2y = -8$

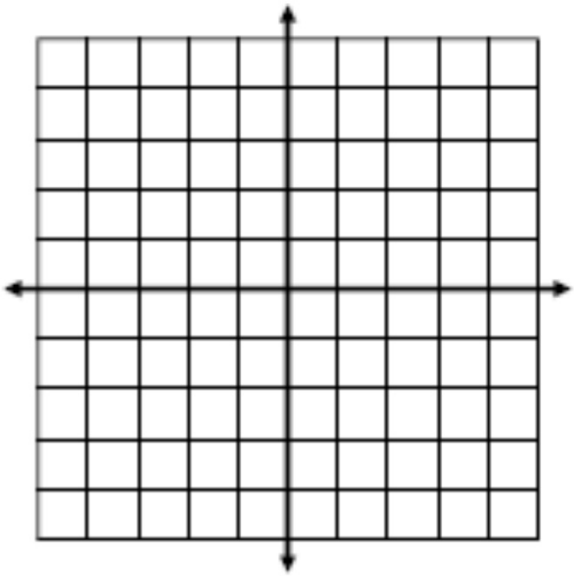
$x - y = -1$



3

3) $x - 4y = 8$

$y = \frac{1}{4}x + 3$



Systems of Equations

SUBSTITUTION METHOD

STEPS TO SOLVE

1. Solve one equation for __x__ or __y__

(Replace)

2. __Substitute__ this expression into the other equation and __Solve__ for the variable.

3. __Substitute__ your answer into the revised equation from Step 1 and __Solve__ for the other variable.

Substitution Method

$\boxed{(-1, -6)}$

$y = 6x$

$2x + 3y = -20$

$y = 6(-1)$

$y = -6$

$2x + 3(6x) = -20$

$2x + 18x = -20$

$\frac{20x}{20} = \frac{-20}{20}$

$x = -1$

Substitution Method

$(3, -1)$

$x = 4y + 7$

$2x - 6y = 12$

$x = 4(-1) + 7$

$-4 + 7$

3

$2(4y+7) - 6y = 12$

$8y + 14 - 6y = 12$

$2y + \cancel{14} = 12$

$\cancel{-14} \quad -14$

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

$y = -1$

Substitution Method

$\boxed{(2,5)}$

$2x - 3y = -11$

$\cancel{2x} + y = 9$

$-\cancel{2x} \quad -2x$

$y = -2x + 9$

$2(2) + y = 9$

$4 + y = 9$

$y = 5$

$2x - 3(-2x + 9) = -11$

$2x + 6x - 27 = -11$

$8x - 27 = -11$

$+27 \quad +27$

$\frac{8x}{8} = \frac{16}{8}$

$x = 2$

2. $y = x + 9$

$3x + 8y = -5$

$y = -7 + 9$

$y = 2$

$(-7, 2)$

$3x + 8(x+9) = -5$

$3x + 8x + 72 = -5$

$11x + 72 = -5$

$-72 \quad -72$

$\frac{11x}{11} = \frac{-77}{11}$

$x = -7$

$2 = -7 + 9$ ✓

$3(-7) + 8(2) = -5$

$-21 + 16 = -5$ ✓

5. $2x + y = -2$

$5x + 3y = -8$

$(2, -6)$

$y = -2x - 2$

$5x + 3(-2x - 2) = -8$

$5x - 6x - 6 = -8$

$-x - 6 = -8$

$+6 \quad +6$

$\frac{-x}{-1} = \frac{-2}{-1}$

$x = 2$

$2(2) + y = -2$

$4 + y = -2$

$-4 \quad -4$

$y = -6$

$x+5y=4 \qquad x=-5y+4$

$3x+15y=-1$

$3(-5y+4)+15y=-1$

$-15y+12+15y=-1$

$12=-1$

$\emptyset$

$$\boxed{(1,4)}$$

$$y=4x$$
$$x+y=5$$

$$x+4x=5$$
$$\frac{5x}{5}=\frac{5}{5}$$
$$x=1$$

$$y=4(1)$$
$$y=4$$

$$\boxed{(8, -2)}$$

$$x = -4y$$

$$3x + 2y = 20$$

$$3(-4y) + 2y = 20$$

$$-12y + 2y = 20$$

$$\frac{-10y}{-10} = \frac{20}{-10}$$

$$y = -2$$

$$x = -4(-2)$$

$$x = 8$$

$$6x + 3y = 54$$

$$2x + y = 18 \qquad y = -2x + 18$$

$$6x + 3(-2x + 18) = 54$$

$$\cancel{6x} - \cancel{6x} + 54 = 54$$

$$54 = 54$$

$$\boxed{\infty}$$

$$4x - 1 = \cancel{2x} - 5$$
$$-2x \quad -\cancel{2x}$$
$$2x - \cancel{1} = -5$$
$$+1 \quad +1$$
$$\frac{2x}{2} = \frac{-4}{2}$$
$$x = -2$$

$$y = 2(-2) - 5$$
$$y = -4 - 5$$
$$y = -9$$

$$(-2, -9)$$