

Solve the system using any method:

$$X - 3y = -17 \text{ and } X = -2y + 13$$

Substitution

* One variable must be solved for, in order to plug in to other equation.

$$X = -2y + 13$$

$$X - 3y = -17$$

$$(-2y + 13) - 3y = -17$$

$$-5y + 13 = -17$$

$$\begin{array}{r} -5y + 13 = -17 \\ -13 \quad -13 \\ \hline -5y = -30 \\ \hline y = 6 \end{array}$$

$$X = -2(6) + 13$$

$$X = -12 + 13$$

$$X = 1$$

$$(1, 6)$$

Elimination

* vertically aligned

$$X - 3y = -17$$

$$X = -2y + 13$$

$$\begin{array}{r} X - 3y = -17 \\ X + 2y = 13 \\ \hline -X + 3y = +17 \\ \hline 5y = 30 \\ \hline y = 6 \end{array}$$

$$y = 6$$

$$X = -2(6) + 13$$

$$X = -12 + 13$$

$$X = 1$$

$$(1, 6)$$

Math 1-A Unit 5: Systems of Equations

Name: _____

Practice solving each system of equations by elimination. We will do the first 2 together.

$$1.) \begin{cases} 3x + y = 22 \\ -3x + 3y = -18 \end{cases}$$

$$\begin{array}{r} 3x + y = 22 \\ -3x + 3y = -18 \\ \hline 4y = 4 \\ y = 1 \end{array}$$

$(7, 1)$

$$\begin{array}{r} 3x + y = 22 \\ 3x + (1) = 22 \\ 3x + 1 = 22 \\ \hline -1 = 21 \\ \frac{-1}{-3} = \frac{21}{-3} \\ x = 7 \end{array}$$

$$2.) \begin{cases} 4x + 2y = 0 \\ 2y = -3x - 2 \end{cases}$$

$$\begin{array}{r} 4x + 2y = 0 \\ 3x + 2y = -2 \\ \hline -x = 2 \\ x = 2 \end{array}$$

*Vertically aligned variables on same side

$$\begin{array}{r} 2y = -3(2) - 2 \\ 2y = -6 - 2 \\ 2y = -8 \\ \frac{2y}{2} = \frac{-8}{2} \\ y = -4 \end{array}$$

$(2, -4)$