Chapter 5 Review

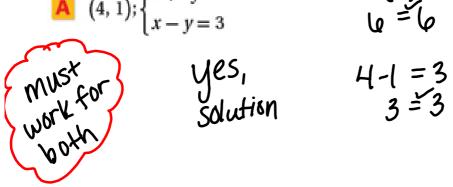## Chapter 5:

- Know whether a given ordered pair is a solution to a system of equations or not
- Solve systems of equations by graphing
- Solve systems of equations using substitution and elimination
- Tell when a system of equations has no solution or infinitely many solutions

Tell whether the ordered pair is a solution of the given system.

A $(4, 1)$; $\begin{cases} x + 2y = 6 \\ x - y = 3 \end{cases}$

X Y

$4 + 2(1) = 6$

$6 = 6$

yes, solution

$4 - 1 = 3$

$3 = 3$

must work for both

Solve each system by graphing. Check your answer.

*Solution: where the 2 graphs cross

2a. $\begin{cases} y = -2x - 1 \\ y = x + 5 \end{cases}$ m = -2   b = -1

m = 1   b = 5

2b. $\begin{cases} y = \frac{1}{3}x - 3 \\ 2x + y = 4 \end{cases}$

(-1, 3)

Solve each system by substitution.

A $\begin{cases} y = 2x \\ y = x + 5 \end{cases}$

$2x = x + 5$
$-x \quad -x$
$\boxed{x = 5}$

$y = 2(5)$ $\boxed{(5, 10)}$
$\boxed{y = 10}$

Solve each system by substitution.

B $\begin{cases} 2x + y = 5 \\ y = x - 4 \end{cases}$

$2x + x - 4 = 5$
$3x - 4 = 5$
$\quad +4 \quad +4$
$\dfrac{3x}{3} = \dfrac{9}{3}$
$\boxed{x = 3}$

$y = 3 - 4$ $\boxed{(3, -1)}$
$\boxed{y = -1}$

Solve $\begin{cases} x - 2y = -19 \\ 5x + 2y = 1 \end{cases}$ by elimination.

$$6x = -18$$
$$\frac{6x}{6} = \frac{-18}{6}$$
$$\boxed{x = -3}$$

$$-3 - 2y = -19$$
$$+3 \qquad +3$$
$$\frac{-2y}{-2} = \frac{-16}{-2}$$
$$\boxed{y = 8}$$

$$\boxed{(-3, 8)}$$

Solve $\begin{cases} y + 3x = -2 \\ 2y - 3x = 14 \end{cases}$ by elimination. Check your answer.

$$\frac{3y}{3} = \frac{12}{3}$$
$$\boxed{y = 4}$$

$$\boxed{(-2, 4)}$$

$$4 + 3x = -2$$
$$-4 \qquad -4$$
$$\frac{3x}{3} = \frac{-6}{3}$$
$$\boxed{x = -2}$$

2. $\begin{cases} y = \boxed{x + 1} \\ -x + y = 3 \end{cases}$

$-x + x + 1 = 3$

$1 \neq 3$

no solution

5. $\begin{cases} y = \boxed{-x + 3} \\ x + y - 3 = 0 \end{cases}$

$x + -x + 3 - 3 = 0$

$0 = 0$

infinitely
many
solutions