

Name: _____

Solutions of Systems of Equations

Exercise 1: Determine whether each system of equations has *one* solution, *no* solution, or *infinitely many* solutions by graphing. If the system has one solution, name it.

1)
$$\begin{aligned} y &= x + 2 \\ y &= -3x - 6 \end{aligned}$$

2)
$$\begin{aligned} 2x + y &= 4 \\ 2x + y &= 6 \end{aligned}$$

3)
$$\begin{aligned} y &= x + 3 \\ y &= -2x + 3 \end{aligned}$$

4)
$$\begin{aligned} 2x + y &= 6 \\ 4x + 2y &= 12 \end{aligned}$$

5)
$$\begin{aligned} 3x - y &= 3 \\ 3x - y &= 0 \end{aligned}$$

6)
$$\begin{aligned} y - 2x &= 0 \\ y + x &= 6 \end{aligned}$$

7)
$$\begin{aligned} y &= x \\ y &= x + 5 \end{aligned}$$

8)
$$\begin{aligned} y &= -x \\ y &= 3x - 4 \end{aligned}$$

9)
$$\begin{aligned} 2x + y &= -3 \\ 6x + 3y &= -9 \end{aligned}$$

10)
$$\begin{aligned} y &= 4x - 1 \\ y - 4x &= 9 \end{aligned}$$

11)
$$\begin{aligned} y &= 3x - 2 \\ 4y &= 12x - 8 \end{aligned}$$

12)
$$\begin{aligned} y &= \frac{1}{2}x \\ y &= -2x + 3 \end{aligned}$$

13)
$$\begin{aligned} y &= -x + 3 \\ y &= \frac{1}{5}x + 2 \end{aligned}$$

14)
$$\begin{aligned} x &= 3 \\ 2x - 3y &= 0 \end{aligned}$$

15)
$$\begin{aligned} 6x + y &= -3 \\ -x + y &= 4 \end{aligned}$$

Exercise 2: Does the system $x - y = 4$ and $x - 3y = 2$ have *one* solution, *no* solution, or *infinitely many* solutions? If the system has one solution, name it.

Exercise 3: Without graphing, determine whether the system $x - 3y = 11$ and $2x - 6y = -5$ has one solution, *no* solution, or *infinitely many* solutions. Explain how you know.