

Do Now

Solve the following systems of equations algebraically for both variables and check.

1)

$$\begin{cases} y = 4x + 8 \\ y = 5x + 6 \end{cases}$$

$$\begin{array}{r} 4x + 8 = 5x + 6 \\ -4x \quad -4x \\ \hline 8 = x + 6 \\ -6 \quad -6 \\ \hline 2 = x \end{array}$$

$$\begin{array}{r} 8 = x + 6 \\ -6 \quad -6 \\ \hline 2 = x \end{array}$$

$$2 = x$$

$$y = 4x + 8$$

$$y = 4(2) + 8$$

$$y = 8 + 8$$

$$y = 16$$

$$(2, 16)$$

1 solution

check 1

$$(2, 16)$$

x, y

$$y = 4x + 8$$

$$16 = 4(2) + 8$$

$$16 = 8 + 8$$

$$16 = 16$$

check 2

$$(2, 16)$$

x, y

$$y = 5x + 6$$

$$16 = 5(2) + 6$$

$$16 = 10 + 6$$

$$16 = 16$$

2)

$$\begin{cases} y = 2x + 3 \\ y = 2x + 7 \end{cases}$$

$$\begin{array}{r} 2x + 3 = 2x + 7 \\ -2x \quad -2x \\ \hline 3 = 7 \end{array}$$

$$3 \neq 7$$

no solutions

3)

$$y = 3x + 4$$

$$y = 3x + 4$$

$$\begin{array}{r} 3x + 4 = 3x + 4 \\ -3x \quad -3x \\ \hline 4 = 4 \end{array}$$

$$4 = 4$$

Infinitely many