

Do Now

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

1)

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

$$\begin{array}{r} x + 1 = 2x - 1 \\ -x \quad -x \\ \hline 1 = x - 1 \end{array}$$

$$\begin{array}{r} 1 = x - 1 \\ +1 \quad +1 \\ \hline 2 = x \end{array}$$

$$y = x + 1$$

$$y = 2 + 1$$

$$y = 3$$

$$\boxed{(2, 3)}$$

check #1

$$(2, 3)$$

x y

$$y = x + 1$$

$$3 = 2 + 1$$

$$3 = 3$$

✓

check #2

$$(2, 3)$$

x y

$$y = 2x - 1$$

$$3 = 2(2) - 1$$

$$3 = 4 - 1$$

$$3 = 3$$

✓

2)

$$\begin{aligned} y &= 4x + 1 \\ y &= 2x + 5 \end{aligned}$$

$$\begin{array}{r} 4x + 1 = 2x + 5 \\ -2x \quad -2x \\ \hline 2x + 1 = 5 \end{array}$$

$$\begin{array}{r} 2x + 1 = 5 \\ -1 \quad -1 \\ \hline 2x = 4 \end{array}$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x = 2$$

$$y = 4x + 1$$

$$y = 4(2) + 1$$

$$y = 8 + 1$$

$$y = 9$$

$$\boxed{(2, 9)}$$

check #1

$$(2, 9)$$

x y

$$y = 4x + 1$$

$$9 = 4(2) + 1$$

$$9 = 8 + 1$$

$$9 = 9$$

✓

check #2

$$(2, 9)$$

x y

$$y = 2x + 5$$

$$9 = 2(2) + 5$$

$$9 = 4 + 5$$

$$9 = 9$$

✓