

# Solving Systems By Substitution

## Steps:

1. Solve one equation for one variable (choose an easy one!)
2. Substitute the equation from #1 into the other equation
3. Solve the new equation
4. Substitute your answer to find the other variable

## EXAMPLES

$$x + 2y = 8 \quad y = 2x - 1$$

No need to solve,  $y$  is by itself!

Substitute!

$$x + 2y = 8$$

$$x + 2(\underline{\hspace{2cm}}) = 8$$

$$x + \underline{\hspace{2cm}} = 8$$

$$\underline{\hspace{2cm}} = 8$$

$$x = \underline{\hspace{2cm}}$$

Substitute into either equation!

$$y = 2x - 1$$

$$y = 2(\underline{\hspace{2cm}}) - 1$$

$$y = \underline{\hspace{2cm}} - 1$$

$$y = \underline{\hspace{2cm}}$$

**Solution:**

$$y - 2x = -17 \quad x + y = 16$$

Solve one equation for  $x$  or  $y$ !

$$x + y = 16$$

$$x = \underline{\hspace{2cm}}$$

Substitute!

$$y - 2x = -17$$

$$y - 2(\underline{\hspace{2cm}}) = -17$$

$$y - \underline{\hspace{2cm}} = -17$$

$$\underline{\hspace{2cm}} = -17$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

Substitute into either equation!

$$x + y = 16$$

$$x + \underline{\hspace{2cm}} = 16$$

$$x = \underline{\hspace{2cm}}$$

**Solution:**