

## Solving Systems Example No. 2

Solve the system of equations below.

$$\begin{cases} 5x - 3y = 4 \\ y = x + 2 \end{cases}$$

Step 1. We can substitute " $x + 2$ " for " $y$ " in the first equation!

$$5x - 3(x + 2) = 4$$

Step 2. Distribute the " $-3$ " to the terms in the parenthesis. Don't forget the negatives!

$$5x - 3(x + 2) = 4$$

$$5x - 3x - 6 = 4$$

Step 3. Combine like terms and then solve.

$$5x - 3x - 6 = 4$$

$$2x - 6 = 4$$

$$+6 \quad +6$$

$$2x = 10$$

$$\div 2 \quad \div 2$$

$$x = 5$$

Step 4. Plug your value for  $x$  into the slope-intercept equation to solve for  $y$ .

$$y = x + 2$$

$$y = 5 + 2$$

$$y = 7$$

Step 5. Make sure your values for  $x$  and  $y$  work in the other equation too.

$$5x - 3y = 4$$

$$5(5) - 3(7) = 4$$

$$25 - 21 = 4$$

$$4 = 4$$

☺ Since  $x = 5$  and  $y = 7$  work for both equations, we know we got it right! ☺