Lesson 17 Solving Systems Using Substitution

Steps to Follow: Substitution Method

1. Solve one equation for a single variable.
2. Put this same variable for the other equation in a box.
3. Replace the variable in the box with an expression that is equal to the isolated variable.
4. You should now have one equation with one variable.
5. Solve this equation for the one variable.
6. Substitute the solved variable into the first equation.
7. Solve for the second variable.
8. Write your answer as an ordered pair.

Examples: Solve by Substitution

1. $\begin{cases} 4x+\boxed{y}=22 \\ y=\boxed{x+7} \end{cases}$

$4x+(x+7)=22$

$5x+7=22$

$-7 \quad -7$

$\frac{5x}{5}=\frac{15}{5}$

$x=3$

$y=3+7$

$y=10$

$(3,10)$

2. $\begin{cases} y=\boxed{2x} \\ 7x-\boxed{y}=15 \end{cases}$

$7x-(2x)=15$

$\frac{5x}{5}=\frac{15}{5}$

$x=3$

$y=2(3)$

$y=6$

$(3,6)$