Solving One-Step Equations Using Models

In what way is a balanced scale like an equation?

What does it mean to solve an equation?

1 Solve \( x + 2 = 5 \) using models.

\[
\begin{align*}
\text{Model the equation.} \\
\hline
\text{\( x + 2 \)} & \quad \text{\( = \)} & \quad \text{\( 5 \)} \\
\hline
\text{\( x + 2 - 2 \)} & \quad \text{\( = \)} & \quad \text{\( 5 - 2 \)} \\
\hline
\text{\( x \)} & \quad \text{\( = \)} & \quad \text{\( 3 \)}
\end{align*}
\]

Therefore, \( x = 3 \). Since \( 3 + 2 = 5 \), the solution is correct.

You Try: Solve \( x + 5 = 9 \) using a model.

\[
\begin{align*}
\end{align*}
\]

2 Solve \( 2x = 6 \) using a model.

\[
\begin{align*}
\text{Model the equation.} \\
\hline
\text{\( 2 \quad x \quad = \quad 6 \)} \\
\hline
\text{Arrange the counters into two equal groups to correspond to the two cups.} \\
\hline
\end{align*}
\]

Therefore, \( x = 3 \), since \( 2 \times 3 = 6 \)

You Try: Solve \( 2x = 8 \) using a model.

\[
\begin{align*}
\end{align*}
\]
Solve each equation using a model.

1. \( x + 1 = 3 \)

2. \( x + 3 = 7 \)

3. \( 2x = 10 \)

4. \( 3x = 6 \)
Write and solve an equation for the model above.

Model and solve the equation:

\[ x + 5 = 7 \]
Write and solve an equation for the model above.

Model and solve the equation:

\[ x - 2 = 6 \]
Write and solve an equation for the model above.

Model and solve the equation:

$$4x = 12$$
Write and solve an equation for the model above.

\[ \square = x \quad \bigcirc = 1 \]

Model and solve the equation:

\[ \frac{x}{4} = 12 \]