

Today we will look at how to find the value(s) of  $x$  by factoring.

**Example:** Rearrange the equation and set it equal to zero so that it can be factored.

$$x^2 - 9x = -18 \rightarrow x^2 - 9x + 18 = 0$$

Once the equation is in the correct order, the next step is to **factor the polynomial**.

$$x^2 - 9x + 18 = 0 \rightarrow (x - 3)(x - 6) = 0$$

Then we set the two factors equal to 0.

$$\begin{array}{r} (x - 3) = 0 \\ + 3 \quad +3 \\ \hline x = 3 \end{array} \quad \text{and} \quad \begin{array}{r} (x - 6) = 0 \\ + 6 \quad +6 \\ \hline x = 6 \end{array}$$

→ The values of  $x$  are 3 and 6

Solve for  $x$  by factoring.

1.  $x^2 + 7x = -12$

2.  $x^2 - 11x + 24 = 0$

3.  $x^2 + 5x = 14$

4.  $x^2 - 20 = 8x$

5.  $6x^2 = 7x - 2$

6.  $3x^2 - 11x = 4$

7.  $20x + 25 = -4x^2$

8.  $x^2 = 64$