

## Lesson 1–5

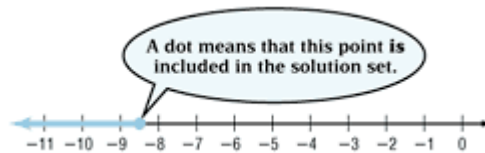
### Example 1 Solve an Inequality Using Addition or Subtraction

Solve  $5w + 6 \leq 4w - 2.5$ . Graph the solution set on a number line.

$$\begin{array}{ll} 5w + 6 \leq 4w - 2.5 & \text{Original inequality} \\ 5w + 6 + (-4w) \leq 4w - 2.5 + (-4w) & \text{Add } -4w \text{ to each side.} \\ w + 6 \leq -2.5 & \text{Simplify.} \\ w + 6 + (-6) \leq -2.5 + (-6) & \text{Add } -6 \text{ to each side.} \\ w \leq -8.5 & \text{Simplify.} \end{array}$$

Any real number less than or equal to  $-8.5$  is a solution of this inequality.

The graph of the solution set is shown below.



**CHECK** Substitute  $-8.5$  for  $w$  in  $5w + 6 \leq 4w - 2.5$ . The two sides should be equal. Then substitute a number less than  $-8.5$ . The inequality should be true.

### Example 2 Solve an Inequality Using Multiplication or Division

Solve  $\frac{z}{5} < 3.6$ . Graph the solution set on a number line.

$$\begin{array}{ll} \frac{z}{5} < 3.6 & \text{Original inequality} \\ -5\left(\frac{z}{5}\right) > -5(3.6) & \text{Multiply each side by } -5, \text{ reversing the} \\ z > -18 & \text{inequality symbol.} \\ & \text{Simplify.} \end{array}$$

The solution set is  $\{z \mid z > -18\}$ .

The graph of the solution set is shown below.

