

**Example 3**

A taxi driver charges a flat fee of \$4 plus \$6 per mile. The tip is included in the mileage rate. Orlando only has \$22 to pay for a taxi ride. How many miles at most can Orlando ride in the taxi? Graph the solution set.

**Strategy** Translate the problem into an algebraic inequality. Then solve.

**Step 1** Translate the problem into an algebraic inequality.

Let  $m$  represent the number of miles.

“Flat fee of \$4 plus \$6 per mile” translates to  $4 + 6m$ .

Use the inequality sign  $\leq$  for “at most.”

$$4 + 6m \leq 22$$

**Step 2** Solve the inequality using inverse operations.

$$4 + 6m \leq 22$$

$$4 - 4 + 6m \leq 22 - 4 \quad \text{Subtract 4 from both sides.}$$

$$6m \leq 18$$

$$\frac{6m}{6} \leq \frac{18}{6}$$

Divide both sides by 6.

$$m \leq 3$$

**Step 3** Test the solution.

Try 2 since  $2 \leq 3$ .

$$4 + 6m \leq 22$$

$$4 + 6(2) \stackrel{?}{\leq} 22$$

$$4 + 12 \stackrel{?}{\leq} 22$$

$$16 \stackrel{?}{\leq} 22$$

← The inequality is true, so the solution is correct.

**Step 4** Interpret the solution.

The solution set  $m \leq 3$  means Orlando can ride 3 miles or less.

**Step 5** Graph the solution set.

The graph must start at 0 since he cannot ride less than 0 miles.

Orlando can ride between 0 and 3 miles. So, draw closed circles on 0 and 3.



**Solution** Orlando can ride between 0 and 3 miles in the taxi.