

**EXAMPLE 3****TAKS REASONING: Multi-Step Problem**

**ELEVATORS** The elevator that takes passengers from the lobby of the John Hancock Center in Chicago to the observation level travels 150 feet in 5 seconds. The observation level is located on the 94th floor, at 1029 feet above the ground. Find the time it takes the elevator to travel from the lobby to the observation level.

**Solution**

**STEP 1** Write a proportion involving two ratios that compare the amount of time the elevator has ascended with the distance traveled.

$$\frac{5}{150} = \frac{x}{1029} \quad \begin{array}{l} \leftarrow \text{seconds} \\ \leftarrow \text{feet} \end{array}$$

**STEP 2** Solve the proportion.

$$\frac{5}{150} = \frac{x}{1029} \quad \text{Write proportion.}$$

$$1029 \cdot \frac{5}{150} = 1029 \cdot \frac{x}{1029} \quad \text{Multiply each side by 1029.}$$

$$\frac{5145}{150} = x \quad \text{Simplify.}$$

$$34.3 = x \quad \text{Use a calculator.}$$

► The elevator travels from the lobby to the observation level in 34.3 seconds.

**CHECK** You can use a table to check the reasonableness of your answer.

<b>Time (sec)</b>	5	10	15	20	25	30	35
<b>Distance traveled (ft)</b>	150	300	450	600	750	900	1050

The solution, 34.3 seconds, is slightly less than 35 seconds, and 1029 feet is slightly less than 1050 feet. So, the solution is reasonable.

**GENERATE TABLE**

As the amount of time increases by 5 seconds, the distance traveled increases by 150 feet.

**GUIDED PRACTICE** for Example 3

- WHAT IF?** In Example 3, suppose the elevator travels 125 feet in 5 seconds. Find the time it will take for the elevator to travel from the lobby to the observation level.
- ASTRONOMY** When two full moons appear in the same month, the second full moon is called a blue moon. On average, 2 blue moons occur every 5 years. Find the number of blue moons that are likely to occur in the next 25 years.