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Unit (Dimensional) Analysis

Write each statement as a rate:

There are 5280 feet in a mile.

$$\frac{5280 \text{ ft}}{\text{mile}}$$

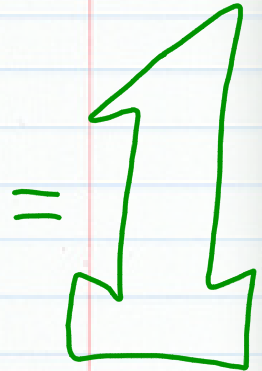
There are 60 seconds in a minute.

$$\frac{60 \text{ sec}}{\text{min}}$$

There are 60 minutes in an hour.

$$\frac{60 \text{ min}}{\text{hr.}}$$

$$60 \cdot 60 = 3600$$



Use the rates to answer this question: If you are driving a car and you are travelling 50 feet per second, what is your rate in miles per hour?

$$\frac{50 \text{ ft}}{\text{sec}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} \cdot \frac{3600 \text{ sec}}{1 \text{ hour}} = \frac{180,000}{5280} = \frac{34.1 \text{ mi}}{\text{hour}}$$

The _____ can travel to the Skydeck in _____

_____ to Skydeck/103rd floor _____



$$\frac{1354 \text{ ft}}{70 \text{ sec}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} \cdot \frac{3600 \text{ sec}}{1 \text{ hour}} = \frac{4874400}{369600} = 13.2 \frac{\text{mi}}{\text{hour}}$$