Rate Word Problems

1. A train travels at a constant rate of 45 miles per hour.

a) What is the distance, d, in miles, that the train travels in t hours?

b) How many miles will it travel in $\mathbf{2.5}$ hours?

2. Water is leaking from a faucet at a constant rate of $\frac{1}{3}$ gallons per minute.

a) What is the amount of water, w, in gallons per minute, that is leaked from the faucet after t minutes?

b) How much water is leaked after an hour?

Rate Word Problems

1. A train travels at a constant rate of 45 miles per hour.

a) What is the distance, d, in miles, that the train travels in t hours?

Let C be the constant rate the train travels.
Then, $\frac{45}{1} = C$, and $\frac{d}{t} = C$; therefore, $\frac{45}{1} = \frac{d}{t}$.

$$\frac{45}{1} = \frac{d}{t}$$
$$d = 45t$$

b) How many miles will it travel in **2.5** hours?

$$d = 45(2.5) = 112.5$$

The train will travel 112.5 miles in
2.5 hours.

2. Water is leaking from a faucet at a constant rate of $\frac{1}{3}$ gallons per minute.

a) What is the amount of water, w, in gallons per minute, that is leaked from the faucet after t minutes?

Let C be the constant rate the water leaks from the
faucet in gallons per minute. Then,

$\frac{\frac{1}{3}}{1} = C$, and $\frac{w}{t} = C$; therefore, $\frac{\frac{1}{3}}{1} = \frac{w}{t}$.

$$\frac{\frac{1}{3}}{1} = \frac{w}{t}$$

$$w = \frac{1}{3}t$$

b) How much water is leaked after an hour?

$$w = \frac{1}{3}t = \frac{1}{3}(60) = 20$$

The faucet will leak 20 gallons in one hour.

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