"I Can Solve Real-World Problems by Comparing Rates, Prices, and Units of Measurement."

Calculating Rates, Speeds and Prices

Example

An airplane is flying from Boston, MA to San Francisco, CA. What is the speed of the airplane in miles per hour?

Time	Miles Flown
06.5 hours	2,704 miles

Got It?

A bus travels 70 miles in 2 hours. What is the speed of the bus in miles per hour?

Example

It costs $6.54 for 5 balloons. How much would it cost for 12 balloons?

Got It?

Beth babysits for 3.5 hours and earns $29.40. How much would she earn if she babysat for 5 hours?

Example

On a busy road, cars can travel only 5 miles in 10 minutes.

a. At this speed, how far will a car travel in 15 minutes?

b. At this speed, how long will it take a car to travel 20 miles?

Got It?

On an even busier road, your friend's mother drives 12 miles in 36 minutes. At this speed, how long does it take your friend's mother to drive 2 miles?

When the units don't match up, we have to do some simple conversions before we begin. Let's set up some equivalent rates to answer each question.

Example

Your aunt drives at a constant speed of 45 miles per hour. How far will your aunt travel in 20 minutes?

Got It?

Lisa bikes at a constant speed of 8 miles per hour. If she bikes for 30 minutes, how far does she travel?

Got It?

Your friend plans to bike to school. Your friend bikes at a constant speed of 9 miles per hour and lives 6 miles from school. If your friend leaves home 35 minutes before school starts, will your friend make it to school on time?

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$\frac{2704 \text{ miles}}{6.5 \text{ hours}} \div 6.5 = \frac{416 \text{ mi}}{1 \text{ hr}}$

Got It?

A bus travels 70 miles in 2 hours. What is the speed of the bus in miles per hour?

$\frac{70 \text{ miles}}{2 \text{ hrs}} \div 2 = \frac{35 \text{ miles}}{1 \text{ hr}}$

Example

It costs $6.55 for 5 balloons. How much would it cost for 12 balloons?

$\frac{\$6.55}{5 \text{ balloons}} \div 5 = \frac{\$1.31}{1 \text{ balloon}} \times 12 = \frac{\$15.72}{12 \text{ balloons}}$

Got It?

Beth babysits for 3.5 hours and earns $29.40. How much would she earn if she babysat for 5 hours?

$\frac{\$29.40}{3.5 \text{ hrs}} \div 3.5 = \frac{\$8.40}{1} \times 5 = \frac{\$42}{5}$

$42 for 5 hrs

Example

On a busy road, cars can travel only 5 miles in 10 minutes.

a. At this speed, how far will a car travel in 15 minutes?

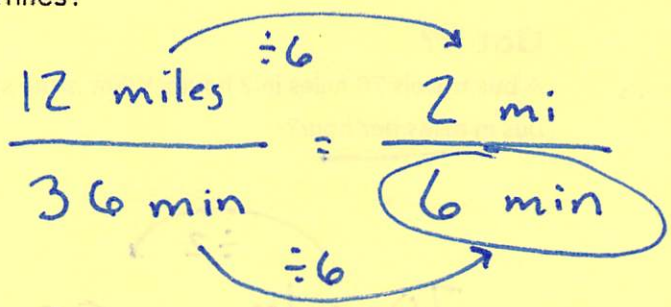
$\frac{5 \text{ mi}}{10 \text{ min}} \div 10 = \frac{0.5}{1} \times 15 = \frac{7.5 \text{ mi}}{15 \text{ min}}$

b. At this speed, how long will it take a car to travel 20 miles?

$\frac{5 \text{ mi}}{10 \text{ min}} \times 4 = \frac{20 \text{ mi}}{40 \text{ min}}$

Got It?

On an even busier road, your friend's mother drives 12 miles in 36 minutes. At this speed, how long does it take your friend's mother to drive 2 miles?



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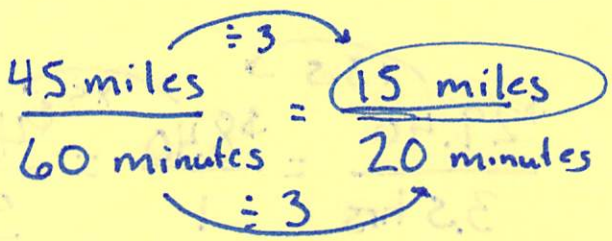
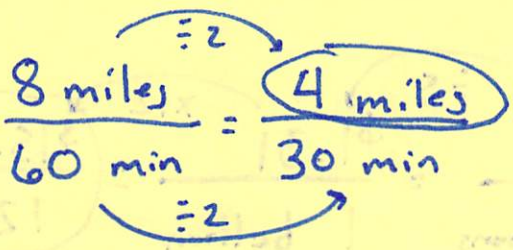


Got It?

Lisa bikes at a constant speed of 8 miles per hour. If she bikes for 30 minutes, how far does she travel?



Got It?

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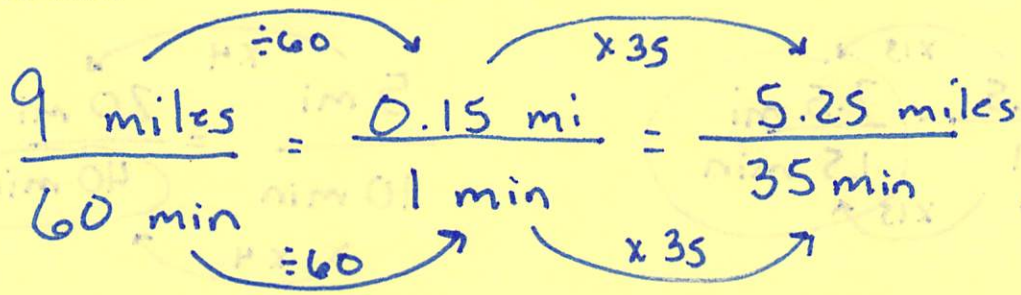

She won't make it!