

Lesson 16: From Ratios to Rates

Classwork

Ratios can be transformed to rates and unit rates.

Example 1: Introduction to Rates and Unit Rates

Diet cola was on sale last week; it cost \$10 for every 4 packs of diet cola.

- How much do 2 packs of diet cola cost?

- How much does 1 pack of diet cola cost?

Exploratory Challenge

- Teagan went to Gamer Realm to buy new video games. Gamer Realm was having a sale: \$65 for 4 video games. He bought 3 games for himself and one game for his friend, Diego, but Teagan does not know how much Diego owes him for the one game. What is the unit price of the video games? What is the rate unit?

2. Four football fans took turns driving the distance from New York to Oklahoma to see a big game. Each driver set the cruise control during his or her portion of the trip, enabling him or her to travel at a constant speed. The group changed drivers each time they stopped for gas and recorded their driving times and distances in the table below.

Fan	Distance (miles)	Time (hours)
Andre	208	4
Matteo	456	8
Janaye	300	6
Greyson	265	5

Use the given data to answer the following questions.

- a. What two quantities are being compared?

- b. What is the ratio of the two quantities for Andre's portion of the trip? What is the associated rate?

Andre's Ratio: _____

Andre's Rate: _____

- c. Answer the same two questions in part (b) for the other three drivers.

Matteo's Ratio: _____

Matteo's Rate: _____

Janaye's Ratio: _____

Janaye's Rate: _____

Greyson's Ratio: _____

Greyson's Rate: _____

- d. For each driver in parts (b) and (c), circle the unit rate and put a box around the rate unit.

3. A publishing company is looking for new employees to type novels that will soon be published. The publishing company wants to find someone who can type at least 45 words per minute. Dominique discovered she can type at a constant rate of 704 words in 16 minutes. Does Dominique type at a fast enough rate to qualify for the job? Explain why or why not.

Lesson Summary

A ratio of two quantities, such as 5 miles per 2 hours, can be written as another quantity called a *rate*.

The numerical part of the rate is called the *unit rate* and is simply the value of the ratio, in this case 2.5. This means that in 1 hour, the car travels 2.5 miles. The unit for the rate is miles/hour, which is read “miles per hour”.

Problem Set

The Scott family is trying to save as much money as possible. One way to cut back on the money they spend is by finding deals while grocery shopping; however, the Scott family needs help determining which stores have the better deals.

1. At Grocery Mart, strawberries cost \$2.99 for 2 lb., and at Baldwin Hills Market strawberries are \$3.99 for 3 lb.
 - a. What is the unit price of strawberries at each grocery store? If necessary, round to the nearest penny.
 - b. If the Scott family wanted to save money, where should they go to buy strawberries? Why?
2. Potatoes are on sale at both Grocery Mart and Baldwin Hills Market. At Grocery Mart, a 5 lb. bag of potatoes cost \$2.85, and at Baldwin Hills Market a 7 lb. bag of potatoes costs \$4.20. Which store offers the best deal on potatoes? How do you know? How much better is the deal?