7th Grade
Lesson 46

- I can find the unit price of a given product.
- I can calculate rates.
- I can find the amount of sales tax on a purchase.
- I can calculate a tip for a service.

The **unit price** is the cost for a single-unit measurement of a product.

What is the unit price for a 24-ounce box of cereal that costs $3.60?

$\frac{\$3.60}{24 \text{ ounces}} = \frac{\$0.15}{1 \text{ ounce}}$

15¢ per ounce | $3.60

$$24\overline{)3.60} = 0.15$$

24
120
120
0

What is the unit price for a 36-ounce box of cereal that costs $4.50?

$\frac{\$4.50}{36 \text{ ounces}} = \frac{\$0.125}{1 \text{ ounce}}$

12.5¢ per ounce | $4.50

$$36\overline{)4.500} = 0.125$$

36
90
72
180
180
0

A **rate** is a ratio of two measurements.

Hans pedaled 84 kilometers in 4 hours. What was his average speed?

$\frac{84\ km}{4\ hr.} = 21\ km/hr$

Frans rode his motorcycle on an interstate trip. He traveled 243 miles on 4.5 gallons of gas. The motorcycle averaged how many miles per gallon (mpg) on the trip?

$\frac{243\ mi}{4.5\ gal} = 54\ mpg$

$45\overline{)2430}$ → 54.
225
180
180
0

The terms of a ratio can be reversed, giving two rates.

Laura can walk 6 miles in 2 hours.

$\frac{6\ miles}{2\ hrs.} = 3\ mph$ $\qquad \frac{2\ hr.}{6\ mi} = \frac{1}{3}\ hr/mi$

A merchant agreed to exchange 20 dollars for 2400 yen or 2400 yen for 20 dollars. Write two reduced rates for the stated exchange rate.

$\frac{\$20}{2400\ yen} = \frac{1}{120}\ dollars/yen$ $\qquad \frac{2400\ yen}{\$20} = 120\ yen/dollar$

Sales Tax

To find the amount of sales tax on a purchase, multiply the full price of the purchase by the tax rate.

A bicycle is on sale for $119.95. The tax rate is 6 percent.

(a) What is the tax on the bicycle?

119.95
× 0.06
7.1970 → $7.20

6% = 0.06

(b) What is the total price including tax?

119.95
+ 7.20
$127.15

Find the total price, including tax, of an $18.95 book, a $1.89 pen, and a $2.29 pad of paper when the tax rate is 5 percent.

Subtotal

tax 5%

Total

The restaurant bill was about $20. Lisa wants to leave a 15% tip for the server. How much money should she leave for the tip?

0.15
x 20
$3.00

Mentally estimate a 15% tip on a $39.45 restaurant bill.

$40

10% - $4
5% - $2
$6

Assignment

Problem Set 46

*A/B Optional: #1, 2, 11, 27