

Sec 5.9/5.10 – Exploring and Comparing Rates

1. Rate

- > A rate is a ratio of two numerical quantities.
- > A rate compares two quantities measured in two different units.
- > A rate can be expressed as a ratio or a fraction.
- > $60 \text{ km/h} = 60 \div 1$ OR $\frac{60 \text{ km}}{1 \text{ hr}}$

2. Unit Rate

- > Compares two quantities in which the second quantity is 1.

3. Unit Price

A unit price is a unit rate that makes it easier to compare the value of similar items.

- > **Example** - Which container is the better buy? Find the cost for a 1kg box.
800g box of Cheerios for \$9.60 or 900g box of Cheerios for \$9.90.

$$\frac{\$9.90}{900\text{g}} = \$0.011/\text{g}$$

$$\frac{\$9.90}{800\text{g}} = \$0.012/\text{g}$$

Better buy

Practice

So: $\frac{\$0.011}{\text{g}} = \frac{x}{1000\text{g}}$ $x = \underline{\underline{\$11/\text{kg}}}$ It would cost \$11 for 1kg

1) Write the following as a unit rate.

a) 5 people are infected by smallpox every 2 days.

$$\frac{5}{2} = 2.5$$

$$\frac{2.5}{1} = 2.5$$

b) Jill earns \$88 for working 8 h.

$$\frac{88}{8} = 11$$

$$\frac{11}{1} = 11$$

c) Cat food costs \$9 for five cans.

$$\frac{\$9}{5 \text{ cans}} = 1.8$$

$$\frac{1.80}{1 \text{ can}} = 1.80$$

2) At Ed's Grocery, one brand of salsa is sold in the following container sizes: 425 mL for \$3.44, 642 mL for \$6.29 and 1.7 L for \$15.49. Which container of salsa is the best buy?

① $\frac{\$3.44}{425 \text{ ml}} = \0.00809 best buy

$\frac{\$1}{128.5 \text{ ml}} = \0.00778

② $\frac{\$6.29}{642 \text{ ml}} = \0.00980

$\frac{\$15.49}{1700 \text{ ml}} = \0.00911

③ $\frac{\$15.49}{1700 \text{ ml}} = \0.00911

$\frac{\$1}{109.74 \text{ ml}} = \0.00911

∴ option 1 is best