

Chapter

1 Unit Pricing and Currency Exchange

KEY TERMS

- buying rate
- exchange rate
- markup
- promotion
- proportion
- rate
- ratio
- selling rate
- unit price
- unit rate

GOALS

Both in the workplace and in your daily life, you will need to make decisions about what to buy and how to pay the best price for what you need. In this chapter, you will use some familiar mathematical concepts—including fractions, percent, rate, and ratio—in a new context. You will apply these mathematical ideas to

- learn how to determine which purchase is the best buy, considering quality and quantity as well as unit price;
- investigate sales promotions and compare their effects; and
- convert Canadian dollars into a foreign currency and foreign currencies into Canadian dollars.

Ratio



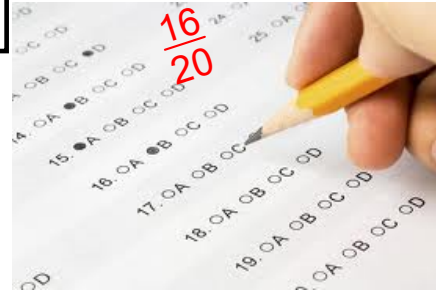
Rate

Proportion

Can you recall what these are??

Ratio: a comparison between two numbers with the **same units**

- can be written 2:5 or 2/5
- fraction is popular for calculations
- fraction form is also called a proportion
- ex: mixing oil 50:1



Rate: a comparison between two numbers with **different units**

- ex: km/h; \$/hr; \$/100 g; words/min
- also known as a rate of change

Proportion: a fractional statement of equality between two ratios or rates



$$\frac{3}{6} = \frac{1}{2}$$

EXAMPLE #1:

Engines requiring a mixture of oil and fuel to provide lubrication are called 2-stroke engines. Lisa lives in McCallum, Newfoundland, and uses her boat for transportation. Her boat motor's tank holds 25 L of fuel. The ratio of gasoline to oil required is 50 parts of gasoline to 1 part of oil. Lisa mixes the fuel and oil in a 30-L jerry can before filling up her boat's tank. How much oil should be added to the gasoline?



STEPS...

1. Indicate the variable and set up the ratio.
2. Use ratio to fill in value.
3. Create equal proportions.
4. Solve for the unknown

gas:oil

50:1

$$\frac{1}{50} = \frac{x}{25}$$

$$x = \frac{50}{25}$$

$$= 0.5\text{L}$$

or 500ml



Jean-Luc, a builder, works in Kentville, Nova Scotia. He has found that he can arrange the work cubicles of his employees best if the ratio between the length and the width of a room is 3:2. If a room is 6m long, how wide should the room be?



SOLUTION...

$$l:w = 3:2$$

$$\frac{2}{3} = \frac{w}{6}$$

$$w = \frac{2(6)}{3}$$

$$= 4\text{m}$$

1. State the variable and Set up ratio.
2. Fill in ratio
3. Use ratio to create proportion.
4. Solve for the unknown.

If halibut steaks cost \$2.49 for 100 g, how much will it cost to buy 250 g of halibut steaks?



SOLUTION...

$$\frac{\$2.49}{100\text{g}} = \frac{x}{250\text{g}}$$

$$x = \frac{\$2.49(250\text{g})}{100\text{g}}$$

$$= \$6.23$$

1. State the variable and Set up ratio or rate.
2. Fill in rate
3. Use rate to create proportion.
4. Solve for the unknown.

Recipe #1

3 cups of concentrate
7 cups of water

Recipe #2

2 cups of concentrate
5 cups of water

You only want to make 8 cups of Recipe #1. How many cups of concentrate and how many cups of water will you need? Explain your solution.

Hint... How many cups does the recipe make in total??

$$\frac{x}{8} = \frac{3}{10}$$

$$x = \frac{3(8)}{10}$$

$$= 2.4 \text{ cups}$$

$$H_2O = 8 - 2.4$$

$$= 5.6 \text{ cups}$$



Sidney Crosby

DISCUSS THE IDEAS

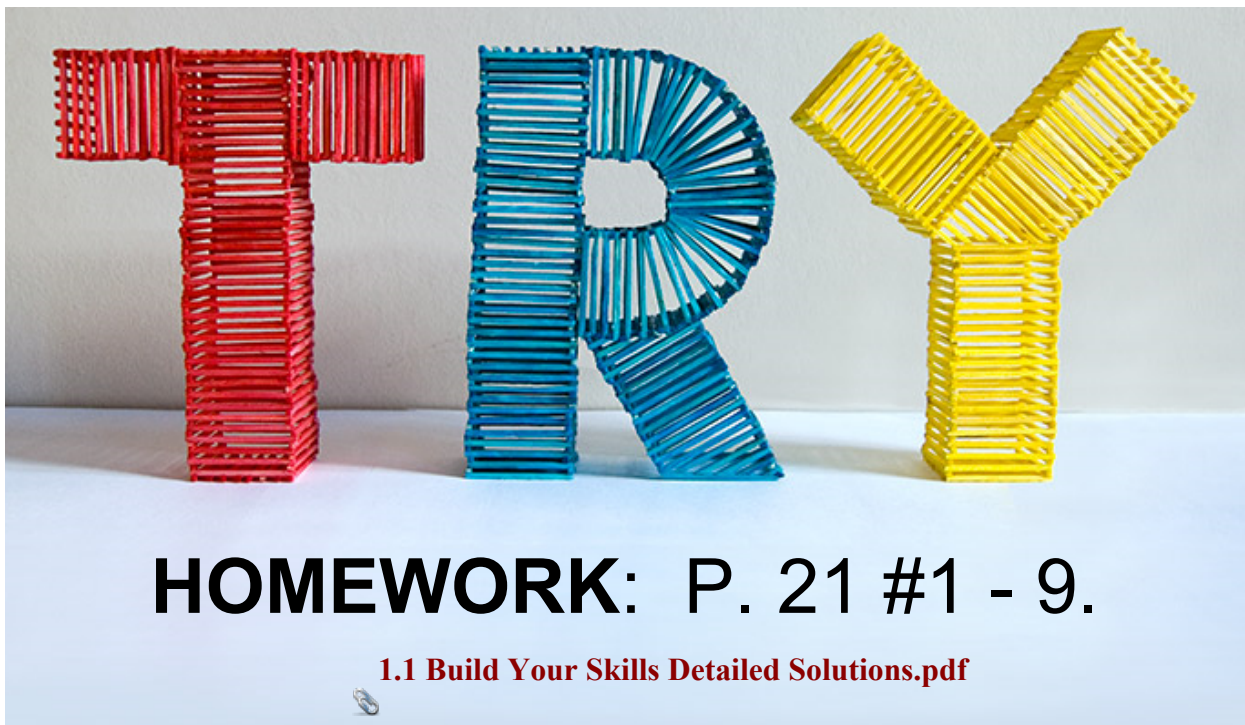
SIDNEY CROSBY, HOCKEY PLAYER

At the 2010 Olympic Winter Games in Vancouver, British Columbia, Sidney Crosby of Cole Harbour, Nova Scotia, scored the gold medal-winning goal in men's hockey. Team Canada, which had been playing at a furious pace against the United States, won the game with a score of 3 to 2.

In the 2001–2002 season, when Crosby was playing for the Dartmouth Subways, he scored 95 goals and earned 193 points in 74 games. How would you calculate the average number of points he earned per game?

$$\frac{193}{74} = 2.6 \text{ pts game}$$

Calculate???



Attachments

1.1 Build Your Skills Detailed Solutions.pdf

1.2 Build Your Skills Detailed Solutions.pdf