6.5 Converting Between Systems

Focus: unit conversion, proportional reasoning

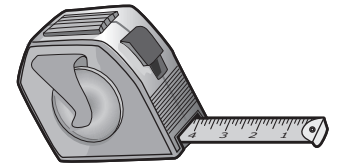| Warm Up	
1. **a)** How many feet are in 1 yard? _____ **b)** How many square feet are in 1 square yard? _____	**2.** Gas is sold in litres in Canada. What unit is used in the United States? _____
3. What is your personal reference for 1 yard? _____	**4.** What is your personal reference for 1 metre? _____
5. Find a ruler in your classroom. How long is it? _____ cm _____ in.	**6.** A plane is scheduled to leave Pearson International Airport at 17:35. What time is that? _____

Metric and Imperial Measurement

- The metric system is Canada's official measurement system. However, many people still use Imperial units for certain measurements.
- For example, lumber and wood trim are sold by the foot.
- In Canada, we buy gasoline by the litre. When we travel to the United States, we buy gasoline by the gallon.

GAS
101.9

Chapter
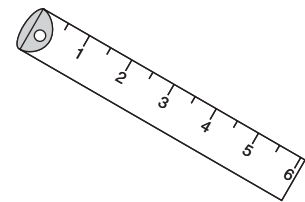
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Converting Length

1. Use a tape measure and create a set of approximate metric conversions for each Imperial length.

Imperial Length	Approximate Metric Conversion
1 in.	
6 in.	
1 ft	
3 ft	
6 ft	

2. Use a tape measure and create a set of approximate Imperial conversions for each metric length.

Metric Measure	Approximate Imperial Equivalent
1 mm	
1 cm	
10 cm	
50 cm	
3 m	

3. Work with a partner and measure each other's height.

My height: _____ cm or _____ ft _____ in.

My partner's height: _____ cm or _____ ft _____ in.

4. The bases in baseball are 90 feet apart. Approximately how many metres is this?

Chapter 6

Travelling in the United States

5. a) 1 mi = _____ km   **b)** 1 km = _____ mi

6. Most 400-series highways in Ontario have a speed limit of 100 km/h. What is the speed limit in miles per hour?

_____ mph

7. The speed limit on parts of Interstate 79 in Pennsylvania is 70 mph. What is the speed limit in kilometres per hour?

_____ km/h

8. An American travel website says the driving distance from Toronto to Orlando, Florida, is just under 1300 mi

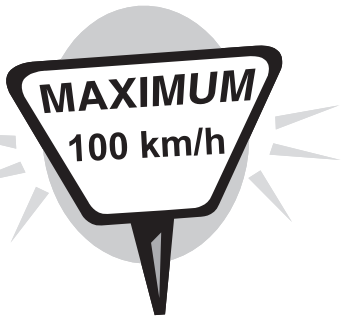**a)** Convert this distance to km

MAXIMUM 100 km/h

b) How many hours would it take you to drive from Toronto to Orlando, if your average speed was 100 km/h?

c) Is this a realistic estimate? Explain why or why not.

_____

_____

_____

9. While you're in the United States, you hear that London, Ontario got 10 to 12 in. of snow.

a) Approximately how many centimetres is that?

b) What personal reference would you use for that height?

_____

Chapter 6

Go to **www.mcgrawhill.ca/books/workplace12** and follow the links to road trip planners. Select a city in the United States that you would like to visit. You will start your trip from your hometown.

10. a) 1 gal = _____ L   **b)** 1 mi = _____ km

11. a) Pick an American city you would like to visit.

_____

b) How far is your destination from your hometown?

_____ km   _____ mi

12. Assume that your car has a 50-L gas tank.

a) You will need to fill up along your route. Find a city along your route where you could stop to fill your
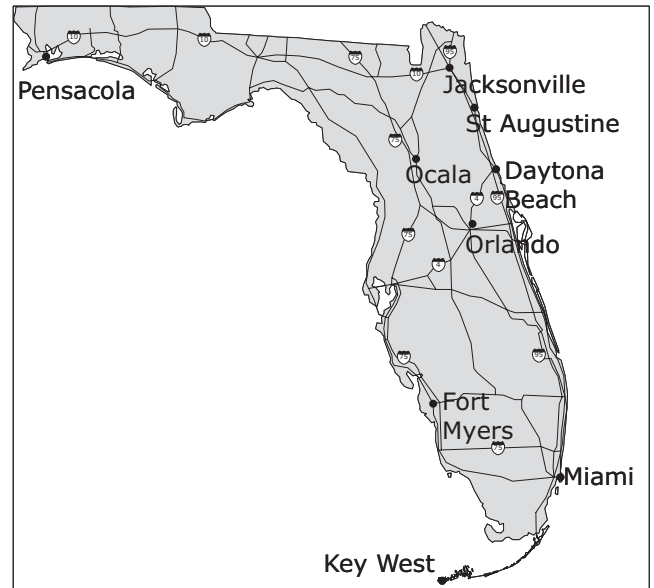
gas tank. _____

b) Research the price of gasoline in the city from

part a). What is the price per gallon? _____

13. a) How much will it cost in American funds to fill the gas tank using the price in #12b)?

b) What is the current exchange rate between the US and the Canadian dollar?

$1 US = $ _____ CDN

c) Calculate the cost, in Canadian dollars, of filling the car.

Chapter

6

Date _____

Weight Conversions

14. a) Use a scale or balance and create a set of approximate conversions for each weight.

Metric Weight	Imperial Weight
1 kg	_____ lb
_____ g	1 lb
_____ g	1 oz

b) Check the following conversions from page 213, #6, for metric and page 215, below #13, for Imperial.

1 kg = _____ g   1 lb = _____ oz

15. You need 5 lb of fish for a favourite recipe. The supermarket sells fish by the kilogram. How many kilograms of fish should you buy?

16. A backyard hammock made in Sweden is rated to carry up to 160 kg. How many pounds can the hammock safely hold?

17. A nurse says that a newborn baby weighs 3978 g.

a) How much does the baby weigh in kilograms?

b) What is its weight in pounds?

Temperature Conversions

- In North America, both the Celsius and Fahrenheit systems are used.

  Temperature in Celsius = $\frac{5}{9}$ × (Temperature in °F − 32)

  Temperature in Fahrenheit = ($\frac{9}{5}$ × Temperature in °C) + 32

18. Claire decides to take a winter vacation in Florida. She flies from Toronto to New Orleans.

  a) When Claire leaves Toronto, the news reports that the temperature is −10 °C. She text messages her friend in New Orleans, who asks for the temperature in °F. Convert the temperature for Claire.

  b) When Claire arrives in New Orleans, the pilot announces that the temperature is 85 °F. Convert this to °C.

19. Omar is making lasagna using a recipe from the Internet. The recipe says to bake the dish for $1\frac{1}{2}$ hours at 175 °C. Omar's oven shows temperatures in Fahrenheit. At what temperature, in degrees Fahrenheit, should the lasagna be baked?

☑ Check Your Understanding

1. Even though Canada officially uses the metric system, what Imperial measurements do you use? Give 3 examples.

_____

_____

_____

_____

Chapter

6