

Conversions in Capacity: SI vs Metric

CONVERTING COMMON COOKING UNITS

<i>Imperial</i>	<i>SI</i>
¼ teaspoon	1.25 mL
½ teaspoon	2.5 mL
1 teaspoon	5 mL
1 tablespoon (3 teaspoons)	15 mL
1 cup	250 mL
1 pint	568.2614 mL
1 quart (2 pt)	1.1365 L
1 gallon (4 qt)	4.5461 L

CONVERTING US IMPERIAL TO SI UNITS

<i>US Imperial</i>	<i>SI</i>
1 fl oz	29.5735 mL
1 pt = 16 fl oz	473.176 mL or 0.473 L
1 qt = 2 pt	946.352 mL or 0.946 L
1 gal = 4 qt	3785.4 mL or 3.785 L

NOTE: 1 L = 1000 mL
1 kL = 1000 L
1 cm³ = 1 mL

EXERCISE: Fill in the blanks...

a) 16 cups = 4 liters

$$4 \text{ L} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1 \text{ C}}{250 \text{ mL}}$$

b) 8 tablespoons = 120 milliliters

$$8 \text{ tbsp} \times \frac{15 \text{ mL}}{1 \text{ tbsp}}$$

c) 6 quarts = 5.676 liters

$$6 \text{ qt} \times \frac{0.946 \text{ L}}{1 \text{ qt}}$$

d) 16 tsp = 5.3 tbsp

$$16 \text{ tsp} \times \frac{1 \text{ tbsp}}{3 \text{ tsp}}$$

e) 22.7 cups = 12 pints

$$12 \text{ pt} \times \frac{473.176 \text{ mL}}{1 \text{ pt}} \times \frac{1 \text{ C}}{250 \text{ mL}}$$

f) 10 fl oz = 1.2 cup

$$10 \text{ fl oz} \times \frac{29.5735 \text{ mL}}{1 \text{ fl oz}} \times \frac{1 \text{ C}}{250 \text{ mL}}$$

Warm up

ACTIVITY 4.9 CONVERTING A RECIPE

Lu'sknikn is a traditional Mi'kmaq bread that is served at community feasts and celebrations. You have found the following *lu'sknikn* recipe that you would like to make, but the measurements are all in imperial units and you only have SI measuring equipment.

1. Examine your teaspoon and measuring cup. What SI and imperial markings are on them? Use the two items and work with a partner to convert the following recipe.

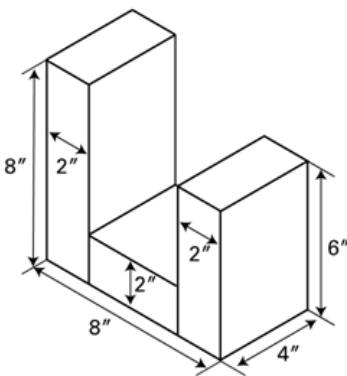
LU'SKNIKN RECIPE		
<i>Imperial</i>	<i>Ingredients</i>	<i>SI</i>
4 cups	flour	<u>1000</u> mL
1 teaspoon	baking powder	<u>5</u> mL
$\frac{3}{4}$ teaspoon	salt	<u>3.75</u> mL
$\frac{1}{2}$ cup	shortening	<u>125</u> mL
3 cups	water	<u>750</u> mL
$\frac{3}{4}$ cup	molasses	<u>187.5</u> mL

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Volume/Capacity Applications

EXAMPLE #1...

Matthew was hired to produce 25 pairs of plastic bookends using the dimensions shown in the diagram below. The bookends will be constructed using an injection mould. Determine the cost of 25 pairs of bookends if the cost of plastic is \$15.25 a cubic foot.



$$\begin{aligned} V &= 2(4)(8) + 2(4)(4) + 2(4)(6) \\ &= 64 + 32 + 48 \\ &= 144 \text{ in}^3 \end{aligned}$$

$$\begin{aligned} \frac{\text{Cost for one}}{\$} &= 144 \text{ in}^3 \times \left(\frac{1 \text{ ft}}{12 \text{ in}} \right)^3 \times \$15.25 / \text{ft}^3 \\ &= 1.27 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= 50 \times \$1.27 \\ &= \$63.5 \end{aligned}$$

EXAMPLE #2...

The gas tank of Rory's car can hold 60 litres of gas.

- a) Rory is travelling in Colorado, USA, and needs to fill up his tank. The cost of gas is \$3.49/gallon. How much will it cost him to fill up, assuming the tank is completely empty?
- b) If Rory took the same car to England, where gas costs \$8.01/gal, how much would it cost him to fill up the tank?

$$a) \quad 60 \text{ L gas} \times \frac{1 \text{ gal}}{3.785 \text{ L}} = 15.85 \text{ gal}$$

$$\$ 3.49/\text{gal} \times 15.85 \text{ gal} = \$ 55.32$$

$$b) \quad 60 \text{ L} \times \frac{1 \text{ gal}}{4.546 \text{ L}} = 13.20 \text{ gal}$$

$$\$ 8.01/\text{gal} \times 13.20 \text{ gal} = \$ 105.73$$

$$\begin{array}{c} \$3.49/\text{gal} \\ \uparrow \\ \text{US} \end{array} \times \frac{1 \text{ gal}}{3.795 \text{ l}} = \begin{array}{c} \$0.92/\text{l} \\ \uparrow \\ \text{CAN} \end{array}$$

Attachments

Worksheet - Converting Areas Imp_Metric.docx

Worksheet - Converting Volumes Imp_Metric.docx

Worksheet - Converting Capacity in Imp.docx

Review Worksheet - Converting Imp_Metric.docx

Review - Chapter 4 Sample Test.pdf