ST. JEAN DE BREBEUF
MATHEMATICS

CHAPTER 1.2

CONVERSIONS BETWEEN METRIC and IMPERIAL SYSTEMS

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KEY CONCEPTS

There are fixed relationships among the different units for length, volume, and weight. A conversion chart is listed below.

Imperial to Metric Conversion Factors		
Length	**Area**	**Volume**
1 in. = 25.4 mm or 2.54 cm	1 $in.^2$ = 6.45 cm^2	1 $in.^3$ = 16.39 cm^3
1 ft = 0.3048 m	1 ft^2 = 0.0929 m^2	1 ft^3 = 28.32 dm^3 or 28.32 L
1 yd = 0.9144 m	1 yd^2 = 0.84 m^2	1 yd^3 = 0.76 m^3
1 mi = 1.609 km	1 acre = 4047 m^2	
Capacity	**Mass**	**Speed**
1 fl oz = 29.6 mL	1 oz = 28.35 g	1 m.p.h. = 1.609 km/h
1 qt = 0.947 L	1 lb = 0.454 kg	
(U.S.) 1 gal = 3.785 L	1 T = 0.91 t	

HOW TO USE CONVERSION CHART

× 0.3048

1 foot = 0.3048 metres

÷ 0.3048

To go from **feet** to **metres**
→Multiply by **0.3048**
To go from **metres** to **feet**
→Divide by **0.3048**

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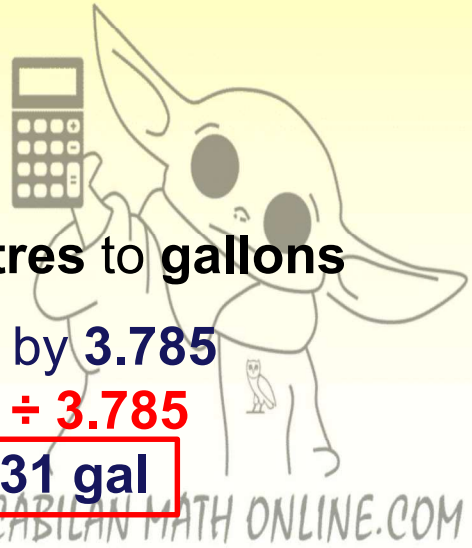
EXAMPLE 1 *Basic Imperial and Metric Conversion*

Convert the following units of measure



(a) **25 inches** to **centimetres**

Multiply by **2.54**

= 25 in **× 2.54**

= 63.5 cm

(b) **55 Litres** to **gallons**

Divide by **3.785**

= 55 L **÷ 3.785**

= 14.531 gal

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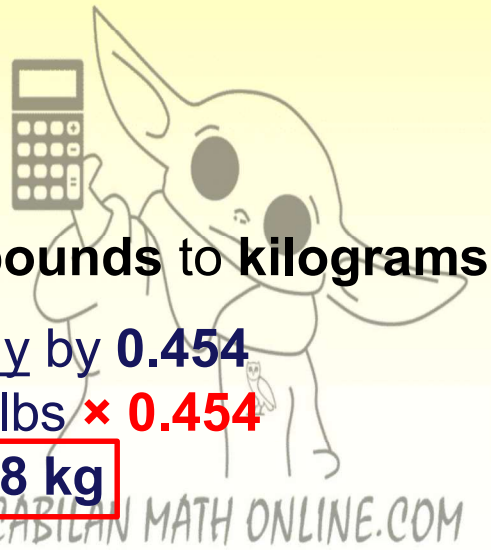

(c) **10 metres** to **feet**

Divide by **0.3048**

= 10 **÷ 0.3048**

= 32.8084 ft

(d) **120 pounds** to **kilograms**

Multiply by **0.454**

= 120 lbs **× 0.454**

= 54.48 kg

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EXAMPLE 2 *Temperature Conversions*

(1) The average Fall temperature in Hamilton is **19°C**. What is the temperature in **degrees Fahrenheit**?

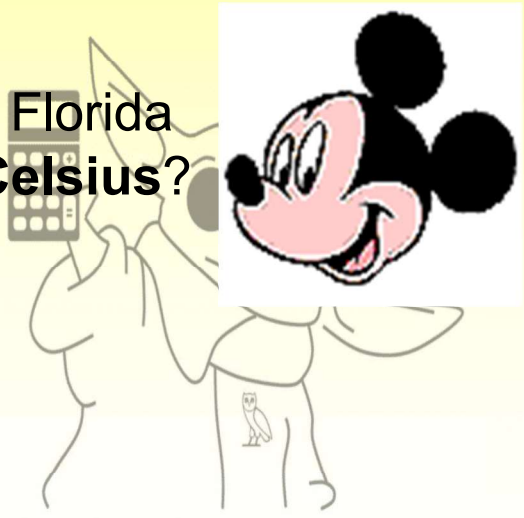
°F (Fahrenheit) = [°C (Celsius) × 1.8] + 32
= (19°C × 1.8) + 32
= 34.2 + 32
= **66.2° F**

The average Fall temperature is **66.2 degrees Fahrenheit**.

(2) The average Summer temperature in Orlando, Florida is **92°F**. What is the temperature in **degrees Celsius**?

°C (Celsius) = [°F (Fahrenheit) – 32] ÷ 1.8
= (92°F – 32) ÷ 1.8
= 60 ÷ 1.8
= **33.3° C**

The average Summer temperature is **33.3 degrees Celsius**.



CHART

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EXAMPLE 3 *Measurement Lengths*

Blueprints for a new amusement park ride were prepared using imperial units. The axles are to be manufactured in a metric facility. The blueprints indicate the diameter of the axles is to be **1 ¾”**. What is the diameter of the axles in **millimetres**?

1 inch — 3 ÷ 4 = **0.75** inches — Total inches = **1.75 in**

Need to convert from **inches** to **millimetres**

→ 1inch = 25.4 millimetres

→Multiply by **25.4**

= 1.75 in × 25.4

= **44.45 mm**

The diameter of the axles is **44.45 millimetres**.

CHART

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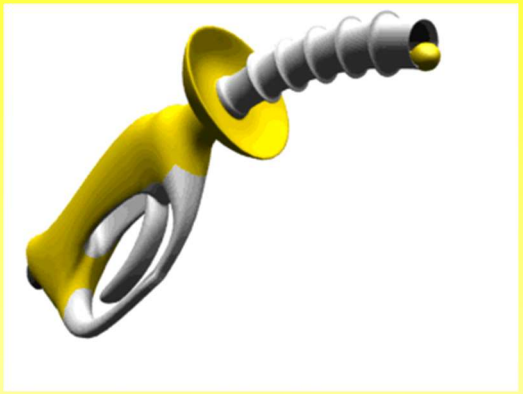

EXAMPLE 4 *Gas Prices*

The average price of gas in San Francisco is **$4.39 per gallon**. What is the price **per litre**?

Step 1: We need to convert **gallons** to **litres**

→1 gallon = 3.785 litres

Step 2: Find the price **per litre**

$$\$4.39 \text{ per gallon} = \frac{\$4.39}{1\,gallon} = \frac{\$4.39}{3.785\,litres}$$

$$= \$1.16\ per\ litre$$

$4.39 per gallon is equivalent to **$1.16 per litre**.

CHART

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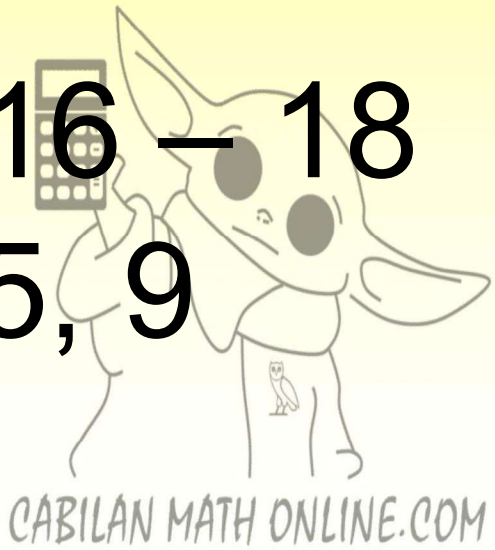
Homework

* Complete Assignment and submit

Extra practice: Page 16 – 18
#1abcdfhij, 2 – 5, 9



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TEMPERATURE

°F (Fahrenheit) = [°C (Celsius) × 1.8] + 32

°C (Celsius) = [°F (Fahrenheit) – 32] ÷ 1.8

PREVIOUS

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