MBF 3C1 Name: _____

Geometric Shapes

Where can geometry be seen in everyday life?

- nature
- products
- sports
- architechture
- art
- fashion

What careers depend on geometry?

- architecture
- construction
- manufacturing
- graphic design
- engineering
- animation
- carpentry

Why are certain geometric shapes important in the real world?

- structure
- appearance
- function

Example 1

a. Why are roofs triangular?
so that the weight of snow would not cause the roof to cave in.

b. Why are manhole covers circular?
so they don't fall into the hole

c. Why are tires round?
for a smoother ride

d. Why are cereal boxes rectangular?
the smallest amount of packaging to fit the largest amount of product + easier to store/ship

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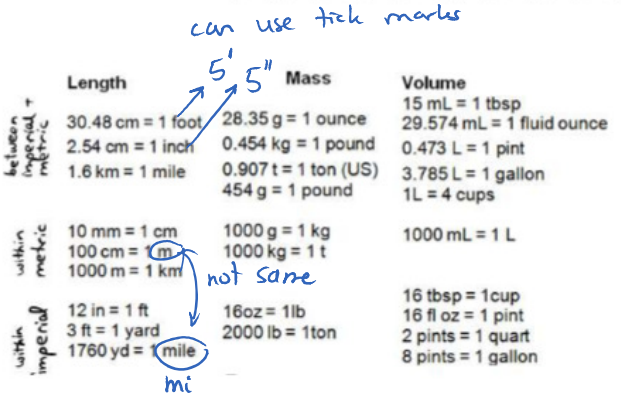
METRIC & IMPERIAL MEASUREMENT

	Metric	Imperial
Length	millimetre (mm)	
	centimetre (cm)	inch (in.)
	kilometre (km)	mile (mi)
Mass (Metric)/ Weight (Imperial)	gram (g)	ounce (oz)
	kilogram (kg)	pound (lb)
	tonne (t)	ton (tn)
Liquid Volume	millilitre (mL)	fluid ounce (fl oz)
		pint (pt)
		quart (qt)
	litre (L)	gallon (gal)
Temperature	degree Celsius (°C)	degree Fahrenheit (°F)



- Each statement above ie. $\boxed{100cm = 1m}$ can be written as ratios that are equivalent to __one__

$$\boxed{\frac{100cm}{1m}} \quad \text{OR} \quad \boxed{\frac{1m}{100cm}}$$

- **How do you decide which ratio to multiply by?**
  Look at placement of units, ensure that they would __cancel__ properly.

Example 1

Show the cancellations of the following speed conversion of cm/min into km/hr, find the final answer.

ONE ONE ONE

$$\frac{187500\ cm}{min} \times \frac{1m}{100cm} \times \frac{1km}{1000m} \times \frac{60\ min}{1hr} = \frac{11250000km}{100\ 000\ hr} = 112.5\ km/hr$$

Steps:

1. Record what's given with __units__
2. Decide on how to place a ratio so that units __cancel__
3. Multiply
   top with __top__ and
   bottom with __bottom__
4. Simplify final answer and record the result with units.

Example 2

a. If a wall is measured to have an area of 891 878 cm^2 long, what is the measurement in ft^2?

$$\frac{891\,878\ cm^2}{1} \times \frac{1\ ft}{30.48\ cm} \times \frac{1\ ft}{30.48\ cm} = 96\ ft^2$$

b. You have a $\frac{5}{16}$ inch drill bit, how large a hole will it make in mm?

$$\frac{5}{16}\ in \times \frac{2.54\ cm}{1\ in} \times \frac{10\ mm}{1\ cm} = \frac{127}{16}\ mm = 7.9\ mm$$

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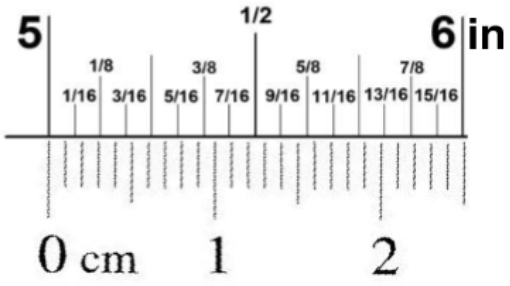
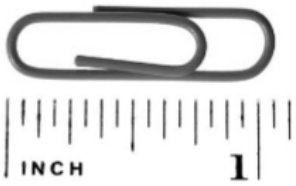


"I know we're inchworms, but let's get into the spirit of this! Change is good!"

Example 3



How long is the paper clip?

improper fraction is better for conversion

$1\frac{1}{16}$ in or $\frac{17}{16}$ in

Convert the measurement of the paper clip to centimetres.

$$\frac{17}{16}\text{ in} \times \frac{2.54\text{ cm}}{1\text{ in}} = \frac{43.18}{16}\text{ cm} = 2.7\text{ cm}$$

Example 4

Ilya was watching an American news broadcast. It spoke of gas prices being $13.25/gal, what was the price per Litre?

in denominator!

$$\frac{\$13.25}{\text{gal}} \times \frac{1\text{ gal}}{3.785\text{ L}}$$

$$= \$3.50/\text{L}$$