

MUST KNOW CONVERSIONS...**Imperial Conversion**

1 ft = 12 in

1 yd = 3 ft

1 mi = 1760 yd

Metric Conversions

1 km = 1000 m

1 m = 100 cm

1 cm = 10 mm

Between SI and Imperial

1 m = 1.0936 yd

1 m = 3.2808 ft

1 mi. = 1.6093 km

1 in. = 2.54 cm

Warm-up

$$1) 4.3 \text{ mi} = \frac{6919.99}{4.3 \text{ mi} \times \frac{1.6093 \text{ km}}{1 \text{ mi}} \times \frac{1000 \text{ m}}{1 \text{ km}}}$$

$$2) 87 \text{ ft} = \frac{26.5}{87 \text{ ft} \times \frac{1 \text{ m}}{3.2808 \text{ ft}}}$$

$$3) 678 \text{ in} = \text{_____ km}$$

$$678 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}}$$

$$\frac{1.6093 \text{ km}}{1 \text{ mi}} = 0.017 \text{ km}$$

13. The tallest structure in Canada is the CN Tower in Toronto. It is 553.3 m tall. The tallest structure in the United States is the Willis Tower, previously known as the Sears Tower, in Chicago. It is 1451 ft. tall.

Which tower is taller?
By how much?

a) Determine the height of the CN Tower in feet and the height of the Willis Tower in metres.

$$553.3 \text{ m} \times \frac{3.2808 \text{ ft}}{1 \text{ m}} = 1815 \text{ ft}$$

$$1815 - 1451 = 364 \text{ ft}$$

The CN Tower is taller by 364 ft.

b) How much taller is the taller structure?

Example 2 Converting between Miles and Kilometres

After meeting in Emerson, Manitoba, Hana drove 62 mi. south and Farrin drove 98 km north. Who drove farther?

SOLUTION
(Erase to reveal)

Hannah 62 mi VS Farrin 98 km

$$62 \text{ mi} \times \frac{1.6093 \text{ km}}{1 \text{ mi}} = 99.7 \text{ km}$$

Hannah drove farther by 1.7 km.

Since 99.2 km > 98 km, Hana drove farther.

CHECK YOUR UNDERSTANDING

TRY THIS ONE...

9. The Fraser River is approximately 1375 km long.
The Tennessee River is approximately 886 mi. long.
Which river is longer? Justify your answer.



1.3 Relating SI and Imperial Units

Example 3 Solving a Problem that Involves Unit Conversions

Alex is 6 ft. 2 in. tall. To list his height on his driver's license application, Alex needs to convert this measurement to centimetres.

What is Alex's height to the nearest centimetre?

 **SOLUTION**
(Erase to reveal)

$$74 \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} = \underline{188 \text{ ish}}$$

$$6 \text{ ft} \rightarrow \text{cm}$$

$$2 \text{ in} \rightarrow \text{cm}$$



CHECK YOUR UNDERSTANDING

1.3 Relating SI and Imperial Units

HOMWORK...

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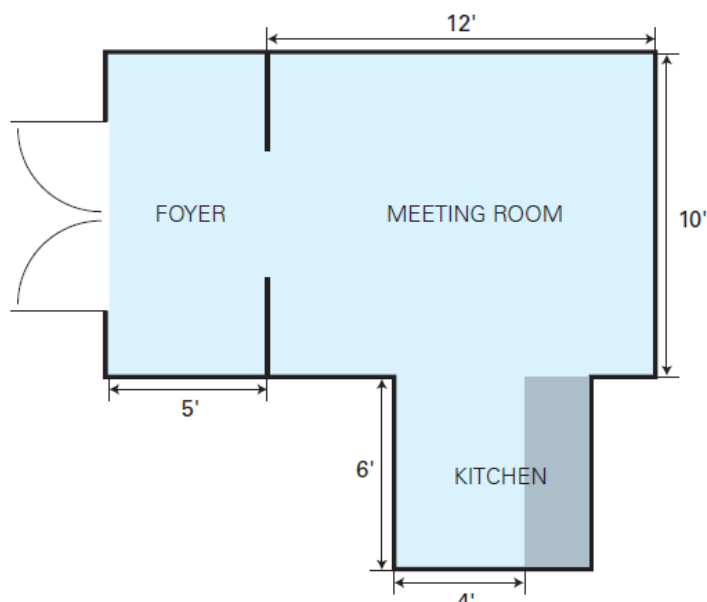
Complete the table below...

Object	mm	ft	yd	cm	in	m
Thickness of hardwood floor	19					
Height of a room		9				
Width of a football field			55			
Length of a pencil				18		
Height of a table					29	
A home run in baseball						135

1. A low bridge has a posted maximum vehicle height of 7'6". Your truck is 2.3 m high. Will it fit under the bridge?
2. A wooden dowel is 0.75 m long. What is its length in centimetres? In inches? You need to record the length of the dowel on a sketch for a carpentry project. Which unit of measurement will you choose to label the sketch with, and why?
3. Valerie wants to apply for a driver's licence. The application asks her to state her height in cm. Valerie is 5'8" tall. What is her height in cm?
4. Sandy has been asked to give an estimate for replacing a countertop in a client's kitchen. The countertop measures 2' × 6' and the client wants Sandy to install 4" × 4" tiles that cost \$3.50 each. Sandy has estimated her labour charge will be \$350.00. What is the total cost of tiles and labour?
5. Moncton Recreation, Parks and Culture wants to install grass sod on a playground that measures 20 m × 40 m. Two companies have bid on the job. Company A's bid was \$4.00/yd² installed. Company B put in a bid of \$2.50/m² plus \$2000.00 for installation. Which company should get the job based on the best price?

6. The materials for a project Justine is making call for 5 ft of twine. The store she visits to buy materials only has a metre stick marked in centimetres and millimetres for measuring. Justine thinks she needs 150 cm of twine. Is Justine's answer correct? Explain how you know.
7. Shelley is trying to decide whether to put hardwood flooring or carpet on her living room floor. The dimensions of the room are 22 ft by 16 ft. The hardwood flooring costs \$18.99/m² with an installation cost of \$1500.00. The carpet costs \$21.95/yd² with an installation cost of \$1350.00. Which type of flooring costs less?

8. Dejan was hired to lay vinyl flooring in the kitchen, meeting room, and foyer of the local Friendship Centre. He used the measurements in the diagram below to estimate the job. The flooring material comes in rolls 10 ft wide and is sold by the running foot, and Dejan needs to purchase enough flooring to ensure the pattern will match in all three rooms. He will also add 15% to his order to compensate for wastage. One running foot of vinyl flooring costs \$12.50. Dejan estimates his labour charge will be \$560.00. What is the total estimate for vinyl flooring and labour?



Attachments

Worksheet - Converting Measurements.docx