# Warm Up

The imperial unit to measure an area of land is the acre. During the initial agricultural expansion of the western provinces, the Canadian government offered 160 acres of land free to settlers who were willing to immigrate to Canada. Today, Canada uses the hectare to measure land area:

1 hectare = 2.471 acres

a) How many hectares did each settler receive?

$$160 \text{ acres} \times \frac{1 \text{ hec}}{2.471 \text{ ac}}$$

$$= 64.75 \text{ hec.}$$

b) One hundred sixty acres is a square with a side length of one-half a mile. How many hectares are in one square mile?

$$64.75 \text{ hec} \times 4$$
$$= 259 \text{ hec}$$
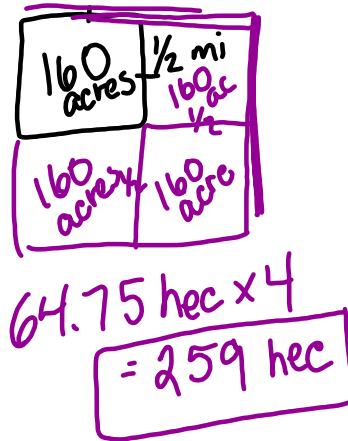
Last Nights Homework. Any Questions????

Page 159: #1 - 4, 6, 8

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

Section 1.3 - Converting Metric and Imperial System

Complete the table.

SOLUTIONS...

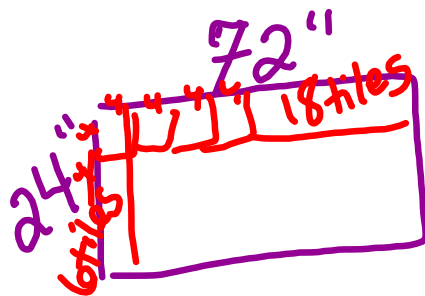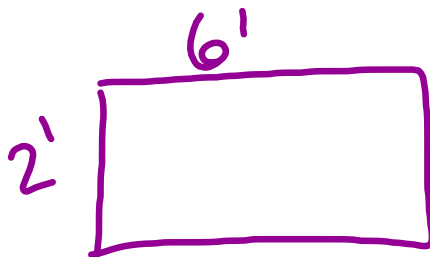| Object	mm	ft	yd	cm	in	m
Thickness of hardwood floor	19	0.0625	0.021	1.9cm	0.75	0.019
Height of a room	2743.2	9	3	274.32	108	2.74
Width of a football field	50 292	165	55	5029.2	1980	50.29
Length of a pencil	180	0.59	0.2	18	7.09	0.18
Height of a table	736.6	2.42	0.81	73.66	29	0.74
A home run in	135000	442.9	147.6	13500	5314.9	135

$$9 \text{ft} \times \frac{12 \text{ in}}{1 \text{ ft}} = \boxed{108 \text{ in}} \times \frac{2.54 \text{ cm}}{1 \text{ in}}$$

$$= \boxed{274.3 \text{cm}}$$

$$274.3 \text{ cm} \times \frac{10 \text{ mm}}{1 \text{ cm}} = \boxed{2743 \text{ mm}}$$

$$274.3 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} = \boxed{2.743 \text{ m}}$$
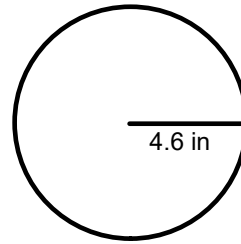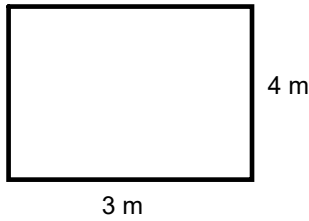
$$9 \text{ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} = \boxed{3 \text{ yd}}$$

6'
2'

4"
4"

72"
4" 4" 18 tiles
24"
6 tiles

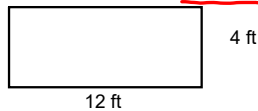$6 \times 18 = 108$ tiles

Area

$$A = bh \quad A = lw$$

4 m

3 m

4.6 in

$$A = \pi r^2$$

Converting Squared Units...

Option #1 - Convert BEFORE area calculation.

EX #1: How many squared metres?

4 ft

12 ft

1 m = 1.0936 yd
1 m = 3.2808 ft
1 mi. = 1.6093 km
1 in. = 2.54 cm

$$4\,ft \times \frac{1\,m}{3.2808\,ft} = 1.2\,m.$$

$$12\,ft \times \frac{1\,m}{3.2808\,ft} = 3.7\,m.$$

$$A = b \times h$$
$$= 1.2 \times 3.7$$
$$\boxed{= 4.44\,m^2}$$

Option #2 - Convert AFTER area calculation.

4 ft

12 ft

$$A = b \times h$$
$$= 4 \times 12$$
$$= 48\,ft^2$$

$$48\,ft^2 \times \left[\frac{1\,m}{3.2808\,ft}\right]^2 = 4.5\,m^2$$

RULE: When converting squared units...
SQUARE THE CONVERTER!!!

A= 1m x 1m
= 1 m^2

or

A= 3.2808 ft x 3.2808 ft
= (3.2808 ft)^2

1 m = 3.2808 ft

1 m = 3.2808 ft

What about cubed units???

EX #2: How many cubic yards?

2 m

1.5 m

3 m
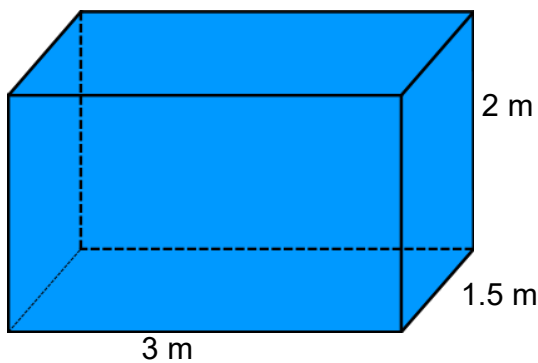
a) Find volume in m^3

b) Find volume in yd^3

$V = lwh$

RULE: When converting cubed units...
CUBE THE CONVERTER!!!

$V = 3 \times 1.5 \times 2 = 9\,m^3$

$9\,m^3 \times \left[\dfrac{1.093\,yd}{1\,m}\right]^3 = 11.77\,yd^3$

MORE EXAMPLES...

1) 22 m^2 = _____ ft^2

$22 m^2 \times \left(\dfrac{3.280 ft}{1 m}\right)^2 = 236.8 ft^2$

2) 1.75 mi^2 = _____ km^2

$1.75 mi^2 \times \left(\dfrac{1.609 km}{1 mi}\right)^2 = 4.5 km^2$

3) 2400 cm^2 = _____ in^2

4) 750 yd^2 = _____ m^2

5) 315 yd^3 = _210.8_ m^3

$315 yd^3 \times \left(\dfrac{1 m}{1.0936 yd}\right)^3$

6) 15 m^3 = _529.7_ ft^3

$15 m^3 \times \left(\dfrac{3.280 ft}{1 m}\right)^3$

7) 0.5 mi^3 = _____ km^3

8) 2450 mm^3 = _____ in^3

HOMEWORK...

Worksheet - Converting Squared and Cubed Units.docx

Questions: 1-10

Attachments

Worksheet - Converting Squared and Cubed Units.docx