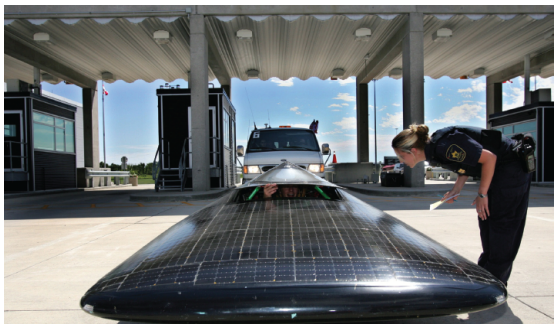
4.2 - Converting Measurements

Make Connections

Two cars are driven in opposite directions from a Canada/United States border crossing.
In one hour, Hana drove 62 mi. south while Farrin drove 98 km north.
How could you determine which vehicle travelled farther from the border?

$62\text{ mi} \times \frac{1.6093\text{ km}}{1\text{ mi}} = 99.7766$

Hana travelled further.



THE CONVERSION FACTORS BETWEEN SI AND IMPERIAL UNITS

SI to Imperial	*Imperial to SI*
1 mm = 0.0394 in	1 in = 25.4 mm
1 cm = 0.3937 in	1 inch = 2.54 cm
1 m = 3.2808 ft	1 ft = 0.3048 m
1 m = 1.0936 yd	1 yd = 0.9144 m
1 km = 0.6214 mi	1 mi = 1.6093 km

IMPORTANT CONVERSIONS...

1 m = 1.0936 yd

1 mi. = 1.6093 km

1 in. = 2.54 cm

PRACTICE: Concerting IMPERIAL to METRIC

4. Convert each measurement. Answer to the nearest tenth.
   a) 16 in. to centimetres
   b) 4 ft. to metres
   c) 5 yd. to metres
   d) 1650 yd. to kilometres
   e) 6 mi. to kilometres
   f) 2 in. to millimetres

a) $16\text{ in} \times \frac{2.54\text{ cm}}{1\text{ in}} = 40.6\text{ cm}$

b) $4\text{ ft} \times \frac{1\text{ yd}}{3\text{ ft}} \times \frac{1\text{ m}}{1.0936\text{ yd}} = 1.2\text{ m}$

c) $5\text{ yds} \times \frac{1\text{ m}}{1.0936\text{ yd}} = 4.6\text{ m}$

d) $1650\text{ yd} \times \frac{1\text{ m}}{1.0936\text{ yd}} \times \frac{1\text{ km}}{1000\text{ m}} = 1.5\text{ km}$

1.3 Relating SI and Imperial Units

e) $6\text{ mi} \times \frac{1.6093\text{ km}}{1\text{ mi}} = 9.7\text{ km}$

f) $2\text{ in} \times \frac{2.54\text{ cm}}{1\text{ in}} \times \frac{10\text{ mm}}{1\text{ cm}} = 50.8\text{ mm}$

PRACTICE: Concerting METRIC to IMPERIAL

5. Convert each measurement.
   a) 25 mm to the nearest inch
   b) 2.5 m to the nearest foot
   c) 10 m to the nearest yard
   d) 150 km to the nearest mile

a) $25\text{mm} \times \frac{1\ \text{cm}}{10\ \text{mm}} \times \frac{1\ \text{in}}{2.54\ \text{cm}} = 0.98\ (1.0\ \text{in})$

b) $2.5\text{m} \times \frac{1.0936\ \text{yd}}{1\ \text{m}} \times \frac{3\ \text{ft}}{1\ \text{yd}} = 8.2\ \text{ft}$

c) $10\ \text{m} \times \frac{1.0936\ \text{yd}}{1\ \text{m}} = 10.9\ \text{yd}$

d) $150\text{km} \times \frac{1\ \text{mi}}{1.6093\ \text{km}} = 93.2\text{mi}$

1.3 Relating SI and Imperial Units

Example 1 Converting from Metres to Feet

A bowling lane is approximately 19 m long.

What is this measurement to the nearest foot?

SOLUTION

(Erase to reveal)

A length of 19 m is approximately 62 ft.

$19\ \text{m} \times \frac{1.0936\ \text{yd}}{1\ \text{m}} \times \frac{3\ \text{ft}}{1\ \text{yd}} = 62.3\ \text{ft}$

(62)

1.3 Relating SI and Imperial Units

HOMEWORK...

- Page 150 Worksheet - Intro. to Imperial Measurement.docx

Do questions: #1-5; 8

Homework Page 150-151

1-5, 8

#5.

4' 3" = 4×12+3
= 51"

8 x 51" = 408"

2πr = 2π(51)
= 320.4"

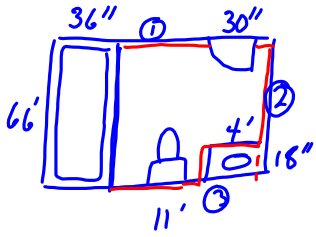
Amt edging = 408" + 320.4"
= 728.4"

$\frac{728.4"}{12}$ = 60.7

$\frac{60.7'}{20}$ = 3.035 (4 rolls)

4 x 9.99 = $39.96

#8.



$11' \times 12''/_{1'} = 132''$

① $132 - 30 - 36 = 66''$

② $66''$

③ $132'' - 36 = 96''$

Total Molding $= 66 + 66 + 96$

$= 228''$

Money $\$_{Time} = \$45.00/_{hr} \times 2.5\,hr$

$= \$112.50$

$\$_{materials} = 228in \times \frac{1\ ft}{12\ in} \times \$6.50/_{ft}$

$= \$123.50$

Markup $= \$123.50 \times 1.15$

$= \$142.025$

$= \$142.03$

Total Cost $= \$123.50 + \$142.03$

$= \$265.53$

Attachments

Worksheet - Intro. to Imperial Measurement.docx