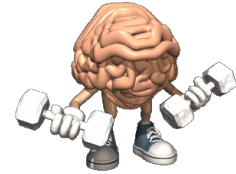


# Warm Up



Convert each of the following:

a)  $112 \text{ in} = \underline{9} \text{ ft } \underline{4} \text{ in}$

$$\begin{array}{l}
 \cancel{112 \text{ in}} \times \frac{1 \text{ ft}}{\cancel{12 \text{ in}}} = \frac{112}{12} \text{ ft} \\
 9 \times 12 \qquad \qquad \qquad 9 \frac{4}{12} \text{ ft}
 \end{array}$$

b)  $18 \text{ ft} = \underline{\hspace{2cm}} \text{ in}$

$$\cancel{18 \text{ ft}} \times \frac{12 \text{ in}}{1 \cancel{\text{ft}}} = 216 \text{ in}$$

$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ yd} = 3 \text{ ft}$$

$$1 \text{ mi} = 1760 \text{ yd}$$

c)  $3.2 \text{ mi} = \underline{\hspace{2cm}} \text{ inches}$

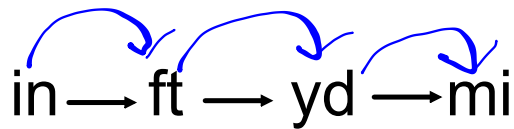
mi → yd → ft → in

in → ft → yd → mi

c) 3.2 mi = \_\_\_\_\_ inches

$$\frac{3.2 \text{ mi}}{1} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}}$$

202 752 in



1ft = 12in

1yd = 3ft

1mi = 1760yd

546 738 in = \_\_\_\_\_ mi

$$546\ 738\cancel{\text{in}} \times \frac{1\cancel{\text{ft}}}{12\cancel{\text{in}}} \times \frac{1\cancel{\text{yd}}}{3\cancel{\text{ft}}} \times \frac{1\text{mi}}{1760\cancel{\text{yd}}}$$

$$\frac{546738}{12 \times 3 \times 1760} \text{ mi}$$

= 8.63mi

**GMF 10 - Imperial Unit Conversion**

Name: \_\_\_\_\_

mi → yd → ft → in

INSTRUCTIONS: Solve the unit conversion problem by cross cancelling units.

9  
miles  
as  
inches

=

$$9 \text{ mi} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 570 \text{ 240 in}$$

17  
miles  
as  
feet

=

$$17 \text{ mi} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 89 \text{ 760 ft}$$

in → ft → yd → mi

mi → yd → ft → in

54184  
feet  
as  
miles

=

$$54184 \text{ ft} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}} = 10.26 \text{ mi}$$

7  
miles  
as  
inches

=

$$7 \text{ mi} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 443520 \text{ in}$$

2  
miles  
as  
inches

=

$$2 \text{ mi} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}} = 126720 \text{ in}$$

in → ft → yd → mi



824435  
inches  
as  
miles

=

$$824435 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}} = 13.01 \text{ mi}$$

443680  
inches  
as  
miles

=

$$443680 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}} = 7 \text{ mi}$$

717897  
inches  
as  
miles

=

$$717897 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}} = 11.33 \text{ mi}$$

50.08 mi

30.58 mi



**Example 2**

**Solving a Problem Involving Converting between Units**

Anne is framing a picture.

The perimeter of the framed picture will be 136 in.

- a) What will be the perimeter of the framed picture in feet and inches?
- b) The framing material is sold by the foot. It costs \$1.89/ft. What will be the cost of material before taxes?

1ft = 12in  
 1yd = 3ft  
 1mi = 1760yd

$$136 \text{ in} = \underline{11} \text{ ft } \underline{4} \text{ in}$$

$$136 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}}$$



1.1 Imperial Measures of Length

$$\frac{136}{12} \text{ ft}$$

$$11 \frac{4}{12} \text{ ft}$$

b)

$$12 \times 1.89$$

$$22.68$$

**Example 2****Solving a Problem Involving Converting  
between Units**

Anne is framing a picture.

The perimeter of the framed picture will be 136 in.

- a) What will be the perimeter of the framed picture in feet and inches?

$$1\text{ft} = 12\text{in}$$

$$1\text{yd} = 3\text{ft}$$

$$1\text{mi} = 1760\text{yd}$$



CHECK YOUR UNDERSTANDING



1.1 Imperial Measures of Length



# Class/ Homework

Textbook Handout  
p. 150: #1 to 6 and 8

$$1\text{ft} = 12\text{in}$$

$$1\text{yd} = 3\text{ft}$$

$$1\text{mi} = 1760\text{yd}$$

Page 150  
Questions 1,2,3,4,5,6 and 8

1. Convert the following measurements.

a) Convert 3520 yd to miles.

b) Convert  $10' \frac{3}{16}"$  to inches.

c) Convert  $8 \frac{3}{4}$  yards to feet.

2. Choose the correct item to go with each linear measurement. Explain why you chose your answer.

a) About 1 mm:

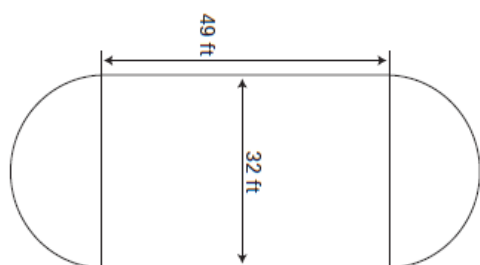
i) length of a movie ticket    ii) width of a fingernail    iii) diameter of a quarter

b) About 1 yd:

i) length of a pen    ii) height of a chair    iii) length of a station wagon

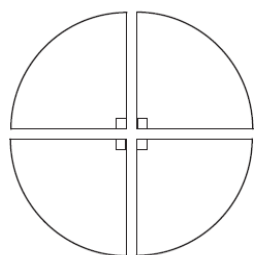
3. What referent could you use to represent a metre? A foot? Compare your SI referent to your imperial referent. Which is larger? How many of the smaller referent are equal to one of your larger referent?

4. You have decided to build a small hockey rink in your backyard, as shown in the diagram. You want to use plywood to build rink boards that are 48" high. Exterior  $\frac{1}{2}$ " plywood is sold in 4' x 8' sheets that cost \$14.15 a sheet.



- a) How many sheets of plywood will you need to surround the rink?  
b) What will be the cost of the plywood, before taxes?

5. A landscape gardener has designed a circular herb garden with 4 sectors, shown on the right. The radius of one sector is 4'3". Each sector will be surrounded with plastic lawn edging that costs \$9.99 for a 20' roll. How much will it cost to put edging around the herb garden? Assume that you cannot buy partial rolls.



6. In professional theatres, there is a catwalk called a fly gallery that runs along the four walls above the stage. Stagehands stand on the fly gallery to raise and lower scenery on and off stage. A structural steel fitter has been asked to replace the inside safety rail of a fly gallery. The space above the stage is 109'6" long and 48'9" wide. The fly gallery is 2½' wide. If the fitter uses rails that are 20 feet long, how many rails will she need?

