

**WARM-UP... Convert each of the following:**

- a) 78 in = 6 ft 6 in
- b)  $6 \times 12 = 72$  inches  $\rightarrow 78$   
 $15 \text{ ft} = \frac{180}{15} = 12$  in  $15 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}}$
- c)  $2.5 \text{ mi} = 158400$  inches
- d)  $250 \text{ in} = 20.8\bar{3}$  ft
- e)  $500 \text{ yds} = 1500$  ft
- f)  $7' 2'' = 2$  yd  $1$  ft  $2$  in
- g)  $1\ 000\ 000 \text{ in} = 15.8$  mi

Conversion factors:

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

Dimensional analysis for (g):

$$2.5 \text{ mi} \times \frac{1760 \text{ yd}}{1 \text{ mi}} \times \frac{3 \text{ ft}}{1 \text{ yd}} \times \frac{12 \text{ in}}{1 \text{ ft}}$$

d)  $20$  ft  $10$  in

$20 \times 12$

e)  $500 \text{ yds} \times \frac{3 \text{ ft}}{1 \text{ yd}}$

g)  $1\ 000\ 000 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} \times \frac{1 \text{ yd}}{3 \text{ ft}} \times \frac{1 \text{ mi}}{1760 \text{ yd}}$

**Example 1** Converting between Imperial Units

- a) Convert 5 yd. to:  
 i) feet    5 yd. = 15 ft.    ii) inches    5 yd. = 180 in.
- b) Convert 51 in. to:  
 i) feet and inches    ii) yards, feet, and inches

 **SOLUTION**  
 (Erase to reveal)



CHECK YOUR UNDERSTANDING

i)  $51 \cancel{\text{in}} \times \frac{1 \text{ ft}}{12 \cancel{\text{in}}} = 4 \text{ ft } 3 \text{ in}$

$\uparrow$   
 $4 \text{ ft } \frac{3}{4 \times 12 = 48} \text{ in}$

ii) 1 yd 1 ft 3 in

**TRY THIS ONE...**

Pierre-Marc converted 21 ft. 9 in. into yards, feet, and inches. His answer was 7 yd. 1 ft. 6 in. Is his answer correct? If your answer is no, show the correct conversion.

$$\frac{21}{3} = 7 \text{ yds.}$$

7 yds 9 in



**Example 2**

**Solving a Problem Involving Converting between Units**

Anne is framing a picture. \* Perimeter - distance around the figure  
 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?

 **SOLUTION**  
 (Erase to reveal)

Handwritten notes in purple ink:  
 $136 \text{ in} \times \frac{1 \text{ ft}}{12 \text{ in}} = 11.3$   
 a) 11 ft 4 in  
 b)  $12 \times 1.89 = 22.68$



CHECK YOUR UNDERSTANDING



**Example 3**

**Solving a Problem Involving Two Unit Conversions**

The school council has 6 yd. of fabric that will be cut into strips 5 in. wide to make decorative banners for the school dance.

a) How many banners can be made?

 **SOLUTION**  
(Erase to reveal)

$$6 \text{ yd.} \times \frac{3 \text{ ft}}{1 \text{ yd.}} \times \frac{12 \text{ in.}}{1 \text{ ft}} = 216 \text{ in.}$$

$$\begin{aligned} \# \text{ of strips} &= \frac{216}{5} \\ &= 43 \text{ strips} \end{aligned}$$

 **CHECK YOUR UNDERSTANDING**

# HOMework...

 Worksheet - Converting Imperial Lengths.docx

## Attachments

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Worksheet - Converting Imperial Lengths.docx