

Warm Up

1) Evaluate the following:

a) $3\frac{15}{16} + 5\frac{11}{32}$

$$\begin{array}{r} 63 \\ 16 \end{array} + \begin{array}{r} 171 \\ 32 \end{array} = \begin{array}{r} 8 \left[\frac{15}{16} + \frac{11}{32} \right] \\ 126 \\ 32 \end{array} + \begin{array}{r} 171 \\ 32 \end{array} = \begin{array}{r} 8 \left[\frac{30}{32} + \frac{11}{32} \right] \\ 297 \\ 32 \end{array} = \begin{array}{r} 9 \frac{9}{32} \end{array}$$

b) $2\frac{5}{8} \times 7\frac{1}{3}$

$$\begin{array}{r} 21 \\ 8 \end{array} \times \begin{array}{r} 22 \\ 3 \end{array} = \begin{array}{r} 462 \\ 24 \end{array} = \begin{array}{r} 231 \\ 12 \end{array} = \begin{array}{r} 19 \frac{3}{12} \\ 19 \frac{1}{4} \end{array}$$

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Imperial Conversions

For today - Need to know:

12 inches = 1 foot 1 mile = 5280 feet
 3 feet = 1 yard 1 mile = 63360 inches
 1760 yards = 1 mile

Factor Labeling Method

Example: Convert 136 inches to feet

$$136 \text{ inches} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 11\frac{2}{3} \text{ feet}$$

0.33333 x 12 → 11 $\frac{2}{3}$ feet

☺ 11' $\frac{2}{3}$ "

$$136 \text{ in.} \times \frac{1 \text{ ft.}}{12 \text{ in.}} = \frac{136 \text{ in.}}{1} \times \frac{1 \text{ ft.}}{12 \text{ in.}} = \frac{136 \text{ in.}}{1} \times \frac{1 \text{ ft.}}{12 \text{ in.}} = \frac{136}{12} \text{ ft.} = 11\frac{4}{12} \text{ ft.}$$

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Example 1 Converting between Imperial Units

a) Convert 5 yd. to:

i) feet ii) inches

$5 \text{ yd} \times \frac{3 \text{ feet}}{1 \text{ yd}} = 15 \text{ feet}$

$5 \text{ yd} \times \frac{3 \text{ feet}}{1 \text{ yd}} \times \frac{12 \text{ inches}}{1 \text{ foot}} = 180 \text{ inches}$

CHECK YOUR UNDERSTANDING

1.1 Imperial Measures of Length

Example 1

Example 1 Converting between Imperial Units

b) Convert 51 in. to:

i) feet and inches ii) yards, feet, and inches

i) $51 \text{ inches} \times \frac{1 \text{ foot}}{12 \text{ inches}} = 4.25 \text{ feet}$

$4.25 \text{ feet} = 4' 3''$

CHECK YOUR UNDERSTANDING

1.1 Imperial Measures of Length

Example 1

Let's try some more!

Convert each of the following

- 78 in = ___ ft ___ in
- 15 ft = ___ in
- 2.5 mi = ___ in
- 250 " = ___ ft ___ in
- 500 yds = ___ ft
- 7' 2" = ___ yd ___ ft ___ in
- 1 000 000 in = ___ mi

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$15 \text{ ft} = \underline{\hspace{2cm}} \text{ inches}$

$15 \cancel{\text{ft}} \times \frac{12 \text{ inches}}{1 \cancel{\text{ft}}} = 180 \text{ inches}$

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$$23 \text{ miles} = \text{_____ yards}$$

$$23 \text{ miles} \times \frac{1760 \text{ yards}}{1 \text{ miles}} = 40480 \text{ yds}$$

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$$5000 \text{ yds} = \text{_____ miles}$$

$$5000 \text{ yds} \times \frac{1 \text{ miles}}{1760 \text{ yds}} = 2.8409 \dots$$

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$$5.7 \text{ miles} = \frac{30096}{\text{_____}} \text{ feet}$$

$$5.7 \text{ miles} \times \frac{1760 \text{ yd}}{1 \text{ miles}} \times \frac{3 \text{ feet}}{1 \text{ yd}} = 30096 \text{ feet}$$

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$$3 \text{ miles} = \frac{5280}{\text{_____}} \text{ yards}$$

$$3 \text{ miles} \times \frac{1760 \text{ yds}}{1 \text{ miles}}$$

$$18 \text{ yds} = \text{_____ feet}$$

$$18 \text{ yd} \times \text{_____}$$

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a) 78 in = _____ ft _____ in

b) 15 ft = _____ in

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c) 2.5 mi = _____ in

d) 250 " = _____ ft

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e) 500 yds = _____ ft

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f) 7' 2" = _____ yd = _____ ft _____ in

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g) 1 000 000 in = _____ mi

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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.

1.1 Imperial Measures of Length

Exercise #12

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?

SOLUTION * Perimeter - distance around the figure

1.1 Imperial Measures of Length

Example 2

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?

SOLUTIONS

a) Method 1

To convert inches to feet, divide by 12.

$$136 \text{ in.} = \frac{136}{12} \text{ ft.}$$

$$136 \text{ in.} = 11\frac{4}{12} \text{ ft.}$$

So, 136 in. = 11 ft. 4 in.

The perimeter of the framed picture will be 11 ft. 4 in. (Solution continues.)

1.1 Imperial Measures of Length

Example 2 Solution, p. 1

$$\begin{array}{r} \$1.89 \\ \times 12 \\ \hline \end{array} = \$22.68$$

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Example 2 Solving a Problem Involving Converting between Units

b) The perimeter of the framed picture is greater than 11 ft., so Anne must buy 12 ft. of framing material.

The cost, C, is:
 $C = 12(\$1.89)$
 $C = \$22.68$

Before taxes, the material will cost \$22.68.

1.1 Imperial Measures of Length

Example 2 Solution, p. 3

Class/ Homework

Worksheet: Converting Imperial Lengths
 (all questions)
 And
 p. 150: #1 to 6 and 8

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CP 150 #4 distance around a circle

$C = \pi d$
 $= \pi(32)$
 100.48

$49 + 49 + 100.48$

198.48 feet

$\div 8$
 $= 24.81 \rightarrow 25 \text{ boards}$

$25 \text{ boards} \times \14.15
 $\$353.75$

$48'' = 4'$

Sep 8-11:19 AM

Attachments

Worksheet - Converting Imperial Lengths.docx