CONVERSIONS
(Dimensional Analysis)

English to Metric

Metric to English

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Convert 17.78 cm to inches

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Write down the given.

$$\frac{17.78 \text{ cm}}{1}$$

Decide the units you want to keep,

which do you want to "cancel"

$$\frac{17.78 \text{cm}}{1} \times \frac{\text{in.}}{\text{cm}} = \text{inches}$$

Fill in the conversion factors,
& do the operations

$$\frac{17.78 \text{cm}}{1} \times \frac{1 \text{ in.}}{2.54 \text{cm}} = \frac{17.78 \text{ in.}}{2.54} = 7 \text{ in.}$$

Convert 31 inches to centimeters

Click to advance slides

Write down the given.

$$\frac{31 \text{ in.}}{1}$$

Decide the units you want to keep,

which do you want to "cancel"

$$\frac{31 \text{ in.}}{1} \quad \text{x} \quad \frac{\text{cm}}{\text{in.}} = \text{centimeters}$$

Fill in the conversion factors,
& do the operations

$$\frac{31 \text{ in.}}{1} \quad \text{x} \quad \frac{2.54 \text{ cm}}{1 \text{ in.}} = 78.74 \text{ cm}$$

Metric/English Conversion practice
(to 3 significant figures) …

1 meter =   ? inches

$$\frac{1 \text{ m}}{1} \cdot \frac{100 \text{ cm}}{1 \text{ m}} \cdot \frac{1 \text{ in.}}{2.54 \text{ cm}} =$$

$$\frac{100 \text{ in}}{2.54} = \textbf{39.370 in.} = \textbf{39.4 in.}$$

2 meter =   ?   feet

$$\frac{2 \text{ m}}{1} \cdot \frac{100 \text{ cm}}{1 \text{ m}} \cdot \frac{1 \text{ in.}}{2.54 \text{ cm}} \cdot \frac{1 \text{ ft}}{12 \text{ in.}} =$$

$$\frac{200 \text{ ft.}}{30.48} = \textbf{6.56 ft.}$$

English/Metric Conversion practice (to 3 significant digits)…

3 lb = ? kg = **? g**

$$\frac{3 \text{ lb}}{1} \cdot \frac{1 \text{ kg}}{2.205 \text{ lb}} =$$

$$\frac{3 \text{ kg}}{2.205} = \mathbf{1.36 \text{ kg}} \cdot \frac{1000 \text{ g}}{1 \text{ kg}} = \mathbf{1360 \text{ g}}$$

4 gallons = ? Liters

$$\frac{4 \text{ gal}}{1} \cdot \frac{4 \text{ qt}}{1 \text{ gal}} \cdot \frac{1 \text{ L}}{1.06 \text{ qt}} =$$

$$\frac{16 \text{ L}}{1.06} = \mathbf{15.09 \text{ L} = 15.1 \text{ L}}$$

For more metric notation see science PowerPoint: 'Metric Conversions'.