Measurement: Converting from Imperial to Metric

Date: Notes.

The U.S. uses the Imperial system which is a system of measurement in which measurements are based on British Units.

EXAMPLE 1: IMPERIAL CONVERSIONS

a) Convert 4 lbs into ounces.

Step 1: Find the conversion in the chart.	1 lb = 16 oz.
Step 2: Set up your ratios with the same units in the numerator and the same units in the denominator. Use "x" to indicate the unknown unit.	lbs. $\frac{1}{16} = \frac{4}{x}$ OR * $\frac{4}{x} = \frac{1}{16}$ ← use this one.
Step 3: Cross multiply to solve for x.	$\frac{4}{x} = \frac{1}{16}$ ← same units on top; same units on bottom $64 = x$ ∴ 64 oz.

b) Convert 8 pints into quarts.

Step 1: Find the conversion in the chart.	1 qt = 2 pt.
Step 2: Set up your ratios with the same units in the numerator and the same units in the denominator. Use "x" to indicate the unknown unit.	pts. $\frac{8}{x} = \frac{2}{1}$ ← same unit on top. qts. ↳ same units on bottom.
Step 3: Cross multiply to solve for x.	$\frac{8}{2} = \frac{2x}{2}$ $4 = x$ ∴ 4 quarts

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EXAMPLE 2: IMPERIAL/METRIC CONVERSIONS

c) Convert 3 yards to metres. 1 yd = 0.9144 m

yds / m: $\frac{3}{x} = \frac{1}{0.9144}$ cross mult.

$2.7432 = x$

∴ 2.7 meters.

d) Convert 50 grams to ounces. 1 oz = 28.35 g

g / oz: $\frac{50}{x} = \frac{28.35}{1}$

$50 = 28.35x$

$\frac{50}{28.35} = \frac{28.35x}{28.35}$

$1.76 = x$

∴ 1.76 ounces.

e) 498 km uses 54 L of gas. Convert this to miles per gallon.

Step 1: Convert km to mi.

1 mi = 1.609 km

km / mi: $\frac{498}{x} = \frac{1.609}{1}$

$498 = 1.609x$

$\frac{498}{1.609} = \frac{1.609x}{1.609}$

$309.5 = x$

∴ 309.5 mi.

Step 2: Convert L to gal.

1 gal = 3.785 L

L / g: $\frac{54}{x} = \frac{3.785}{1}$

$\frac{54}{3.785} = \frac{3.785x}{3.785}$

$14.2668 = x$

$14.3 = x$

∴ 14.3 gallons.

Step 3: Rewrite in miles per gallon. (mi/gal)

309.5 mi / 14.3 gal.

∴ 26.1 mi / gal.