

WS 1.6 Dimensional Analysis (CONVERSIONS)

This may be the most important worksheet of the semester.

1 ft = 12 in
1 mi = 5280 ft
1 lb = 16 oz
1 gal = 4 qt

1 in = 2.54 cm
1 mi = 1.61 km
1 lb = 454 g
1 L = 1.057 qt

1 m = 100 cm
1 km = 1000 m
1 kg = 1000 g
1 L = 1000 mL
1 mL = 1 cm³

example A: 29.5 in --> ft: $29.5 \cancel{\text{in}} \times \frac{1 \text{ ft}}{12 \cancel{\text{in}}} = 2.46 \text{ ft}$

example B: 0.036 m --> in: $0.036 \cancel{\text{m}} \times \frac{100 \cancel{\text{cm}}}{1 \cancel{\text{m}}} \times \frac{1 \text{ in}}{2.54 \cancel{\text{cm}}} = 1.4 \text{ in}$

1) 2.45 ft --> mi

2) 75.0 kg --> lb

3) 10.0 gal --> mL

4) 89 km --> in

example C: 5.17 lb/gal --> lb/qt:

example D: 3.4 mi/hr --> km/min

5) 459 ft/sec --> mi/hr

6) 2.40 g/mL --> lb/gal

7) 32.56 km/hr --> ft/hr

example E: 3.9 cm³ --> ft³

8) 5800 mi² --> km²

9) 35.2 ft² --> cm²

ANS (IRO+2): 0.000464 165 107,000 22.4 32,700 15,000 313 220. 3,500,000 20.0
37,800

UNITS (IRO+2): km² mL lb/gal mi ft/hr cm² in mi/hr lb kg lb/ft³