

Name: _____

Factor-Label (Dimensional Analysis) Worksheet:

Question 1:

Commercial airlines fly at 35,000 feet. How many miles from sea level is this?

$$35,000 \text{ ft} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} = 6.6 \text{ mi}$$

Unit factors

$\frac{2.54 \text{ cm}}{1 \text{ in}}$	$\frac{1 \text{ ft}}{12 \text{ in}}$	$\frac{1 \text{ m}}{100 \text{ cm}}$	$\frac{16 \text{ oz}}{1 \text{ lb}}$	$\frac{1000 \text{ m}}{1 \text{ km}}$	$\frac{5280 \text{ ft}}{1 \text{ mi}}$	$\frac{453.6 \text{ g}}{1 \text{ lb}}$
$\frac{3600 \text{ s}}{1 \text{ hr}}$	$\left(\frac{1 \text{ in}}{2.54 \text{ cm}}\right)^3$	$\frac{1 \text{ mg}}{1000 \mu\text{g}}$	$\frac{1 \text{ g}}{1000 \text{ mg}}$	$\frac{1 \text{ L}}{1000 \text{ mL}}$	$\frac{1 \text{ m}}{1000 \text{ mm}}$	$\frac{1000 \text{ g}}{1 \text{ kg}}$

Question 2:

An Olympic swimming pool is 25 meters long. How long is an Olympic swimming pool in feet?

$$25 \text{ m} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} = 82 \text{ ft}$$

Unit factors

$\frac{2.54 \text{ cm}}{1 \text{ in}}$	$\frac{1 \text{ ft}}{12 \text{ in}}$	$\frac{1 \text{ m}}{100 \text{ cm}}$	$\frac{16 \text{ oz}}{1 \text{ lb}}$	$\frac{1000 \text{ m}}{1 \text{ km}}$	$\frac{5280 \text{ ft}}{1 \text{ mi}}$	$\frac{453.6 \text{ g}}{1 \text{ lb}}$
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Question 3:

The density of white ash used in making wooden baseball bats is listed as 0.025 lb/in³. The density of aluminum used in making aluminum baseball bats is 2.70 g/cm³. What is the density of white ash in g/cm³?

$$\frac{0.025 \text{ lb}}{\text{in}^3} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} \times \boxed{} = 0.69 \frac{\text{g}}{\text{cm}^3}$$

Unit factors

$\frac{2.54 \text{ cm}}{1 \text{ in}}$	$\frac{1 \text{ ft}}{12 \text{ in}}$	$\frac{1 \text{ m}}{100 \text{ cm}}$	$\frac{16 \text{ oz}}{1 \text{ lb}}$	$\frac{1000 \text{ m}}{1 \text{ km}}$	$\frac{5280 \text{ ft}}{1 \text{ mi}}$	$\frac{453.6 \text{ g}}{1 \text{ lb}}$
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