

Physics
conversion / sig fig practice

name Key

* Convert the following:

1) 25 mg to grams $\frac{25 \text{ mg}}{1000 \text{ mg}} \text{ g} = \boxed{.025 \text{ g}}$

2) 2.5 mi to ft $\frac{2.5 \text{ mi} \cdot 5280 \text{ ft}}{1 \text{ mi}} = \boxed{13200 \text{ ft}}$

3) .0054 kg to mg $\frac{.0054 \text{ kg} \cdot 1000 \text{ g} \cdot 1000 \text{ mg}}{1 \text{ kg} \cdot 1 \text{ g}} = \boxed{5400 \text{ mg}}$

4) 25 m/s to km/hr $\frac{25 \text{ m} \cdot 3600 \text{ s} \cdot 1 \text{ km}}{1 \text{ hr} \cdot 1000 \text{ m}} = \boxed{90 \frac{\text{km}}{\text{hr}}}$

5) 560 cm² to m² $\frac{560 \text{ cm}^2 \cdot \text{m}}{100 \text{ cm}} \cdot \frac{\text{m}}{100 \text{ cm}} = \boxed{.056 \text{ m}^2}$

6) 65 mi/hr to ft/s $\frac{65 \text{ mi} \cdot 5280 \text{ ft} \cdot 1 \text{ hr}}{1 \text{ hr} \cdot 1 \text{ mi} \cdot 3600 \text{ s}} = \boxed{95.3 \frac{\text{ft}}{\text{s}}}$

7) 2500 ml to l $\frac{2500 \text{ ml}}{1000 \text{ ml}} \text{ L} = \boxed{2.5 \text{ L}}$

8) 568000 cm³ to m³ $\frac{568000 \text{ cm}^3 \cdot 1 \text{ m}}{100 \text{ cm}} \cdot \frac{1 \text{ m}}{100 \text{ cm}} \cdot \frac{1 \text{ m}}{100 \text{ cm}} = \boxed{.568 \text{ m}^3}$

9) 500,000,000 in² to mi² $\frac{500000000 \text{ in}^2 \cdot \text{ft}}{12 \text{ in}} \cdot \frac{\text{ft}}{12 \text{ in}} \cdot \frac{\text{mi}}{5280 \text{ ft}} \cdot \frac{\text{mi}}{5280 \text{ ft}} = \boxed{.1245 \text{ mi}^2}$

10) 60 km/h to m/s $\frac{60 \text{ km} \cdot 1 \text{ hr}}{1 \text{ hr} \cdot 3600 \text{ s}} \cdot \frac{1000 \text{ m}}{1 \text{ km}} = \boxed{16.67 \text{ m/s}}$

11) 4 km to m $\frac{4 \text{ km} \cdot 1000 \text{ m}}{1 \text{ km}} = \boxed{4000 \text{ m}}$

12) 340 l to ml $\frac{340 \text{ l} \cdot 1000 \text{ mL}}{1 \text{ L}} = \boxed{340,000 \text{ mL}}$

13) 50 cm to ft $\frac{50 \text{ cm} \cdot 1 \text{ in}}{2.54 \text{ cm}} \cdot \frac{\text{ft}}{12 \text{ in}} = \boxed{1.64 \text{ ft}}$

14) 45 cm³ to l $\frac{45 \text{ cm}^3 \cdot 1 \text{ m}^3}{1 \text{ cm}^3} \cdot \frac{\text{L}}{1000 \text{ mL}} = \boxed{.045 \text{ L}}$

15) 5 yd³ to ft³ $\frac{5 \text{ yd}^3 \cdot 3 \text{ ft}}{1 \text{ yd}} \cdot \frac{3 \text{ ft}}{1 \text{ yd}} \cdot \frac{3 \text{ ft}}{1 \text{ yd}} = \boxed{135 \text{ ft}^3}$

* Determine the number of sig figs in the following. Write answer to the left of the numbers.

2 3.9 2.0040 3 4.00 4.2040 1 1000 5 6000.0 1 6000 4.04000 6 2.05000
 3 5.03 3 0.980 4.2300 ∞ 30 people 3 1.40×10^4 1 7000 6 16000.0 7 2.020200
 2 6500 2 3200 3 30.0 8 4000.0000 2 420000 2.000040 1 200 4 900.0

* Compute the following then give answer in correct sig figs.

1) $5.9 + .4678$
 6.4

2) 6.7×3.005
 2.0×10^1

4.67×5.00
 23.4

4) $5.7 - 4.65340$
 1.0

5) $3 \div 94.875$
 .03

6) $8 \times 4.0 \times 545,670.0$
 20000000
 2×10^7

7) $7.2 \div 9.9$
 .73

8) $7.9 + 8.900 + 2.34$
 19.1

9) 96×5
 500

* In a particular experiment, we observed and recorded the following data. 5 m/s, 12 m/s, 15 m/s, 4.5 m/s. It is later determined that the actual target value for the experiment was 12 m/s. Determine the relative error of each observed value. (Sig Figs not required)

$\frac{5-12}{12} = 58\%$ $\frac{12-12}{12} = 0\%$ $\frac{15-12}{12} = 25\%$ $\frac{4.5-12}{12} = 63\%$