1) express in scientific notation
   a) 5800 m
   b)450,000 m
   c) 302,000,000 m
   d) 86,000,000,000 m

2) express in scientific notation
   a) 0.000508 kg
   b) 0.00000045 kg
   c) 0.0003600 kg
   d) 0.004 kg

5) convert to kg
   a)147 g
   b) 11 Mg
   c) 7.23 μg
   d) 478 mg

1) express in scientific notation
   a) 5800 m = 5.8×10^{3} m
   b) 450,000 m = 4.5×10^{5} m
   c) 302,000,000 m = 3.02×10^{8} m
   d) 86,000,000,000 m = 8.6×10^{10} m

2) express in scientific notation
   a) 0.000508 kg = 5.08×10^{-4} kg
   b) 0.00000045 kg = 4.5×10^{-7} kg
   c) 0.0003600 kg = 3.600×10^{-4} kg
   d) 0.004 kg = 4×10^{-3} kg

5) convert to kg
   a)147 g = 0.147 kg
   b) 11 Mg = 1.1×10^{4} kg
   c) 7.23 μg = 7.23×10^{-9} kg
   d) 478 mg = 4.78×10^{-4} kg

8) Solve

a) 5.0×10^{-7} mg + 4×10^{-8} mg =

b) 6.0×10^{-3} mg + 2×10^{-4} mg =

c) 3.0×10^{-2} pg - 2×10^{-6} ng =

d) 8.2 km - 3×10^{2} m =

a) $\frac{(3 \times 10^{4}\ \text{kg})(4 \times 10^{4}\ \text{m})}{6 \times 10^{4}\ \text{s}} =$

b) $\frac{(2.5 \times 10^{6}\ \text{kg})(6 \times 10^{4}\ \text{m})}{5 \times 10^{-2}\ \text{s}^2} =$

8) Solve

a) 5.0×10^{-7} mg + 4×10^{-8} mg =

$= 5.4 \times 10^{-7}$ mg

b) 6.0×10^{-3} mg + 2×10^{-4} mg =

$= 6.2 \times 10^{-3}$ mg

c) 3.0×10^{-2} pg - 2×10^{-6} ng =

$= 2.8 \times 10^{-2}$ pg

d) 8.2 km - 3×10^{2} m =

$= 7.9 \times 10^{3}$ m

11) Solve

a) $$\frac{(3 \times 10^{4}\ \text{kg})(4 \times 10^{4}\ \text{m})}{6 \times 10^{4}\ \text{s}}$$

$= 2 \times 10^{4}$ kg m/s

b) $$\frac{(2.5 \times 10^{6}\ \text{kg})(6 \times 10^{4}\ \text{m})}{5 \times 10^{-2}\ \text{s}^2}$$

$= 3 \times 10^{12}$ kg m/s^2

Quiz 2a

Express in standard scientific notation:

1) 1,205,000 g =

2) 0.000450 kg =

Solve the following and express in standard scientific notation:

3) 3.4×10^3 kg / 2.11 m^3 =

4) 2.35×10^4 kg - 2.1×10^3 kg =

Quiz 2a

Express in standard scientific notation:

1) 1,205,000 g = 1.205×10^{6} g

2) 0.000450 kg = 4.50×10^{-4} kg

Solve the following and express in standard scientific notation:

3) 3.4×10^{3} kg / 2.11 m^3 = 1.6×10^{3} kg/m^3

4) 2.35×10^{4} kg - 2.1×10^{3} kg = 2.14×10^{4} kg

1. This room 13.4145 m +/- 0.0005 m wide(N to S), 9.4510 m deep and 2.9470 m high.
   a) What is the floor area?
   b) What is the west wall area?
   c) What is the volume of the room?

1. This room 13.4145 m +/- 0.0005 m wide(N to S), 9.4510 m deep and 2.9470 m high.
   a) What is the floor area?
   b) What is the west wall area?
   c) What is the volume of the room?

a) A = w x L = 13.4145 m x 9.4510 m = 126.78 m^2

b) A = w x h = 13.4145 m x 2.9470 m = 39.533 m^2

c) V = w x L x h = 13.4145 m x 9.4510 m x 2.9470 m =

= 373.62 m^3

You measure a block to be 3.40 cm by 2.43 cm by 1.70 cm and has a mass of 29.90 g.
a) What the is the uncertainty and percentage uncertainty of each measurement?

b) What the density of your block?

c) What is the absolute and relative error of your density if the accepted value is 2.20 g/cm^3

You measure a block to be 3.40 cm by 2.43 cm by 1.70 cm and has a mass of 29.90 g.

a) What the is the uncertainty and percentage uncertainty of each measurement?

unc_1 = +/- .01 cm, % = (.01 cm/3.40 cm) x 100 = .3%

unc_2 = +/- .01 cm, % = (.01 cm/2.43 cm) x 100 = .4%

unc_3 = +/- .01 cm, % = (.01 cm/1.70 cm) x 100 = .6%

unc_4 = +/- .01 g, % = (.01 g cm/29.90 g) x 100 = .03%

b) What the density of your block?

$\rho = m/V = 29.90\ g/14.0\ cm^3 = 2.14\ g/cm^3$

c) What is the absolute and relative error of your density if the accepted value is 2.20 g/cm^3

$E_A = |O - A| = |2.14\ g/cm^3 - 2.20\ g/cm^3| = .06\ g/cm^3$

$E_R = (E_a/A) \times 100 = (.06\ g/cm^3/2.20\ g/cm^3) \times 100 = 3\%$