

- Using the rules of significant figures, calculate the following: (2pts)
 $(3.2 \times 10^3) \times (2.14 \times 10^{-13}) / (6.111 \times 10^{-11}) = ?$
- Given: $(8.40\text{m}) \times (94.67\text{m})$. What is the product expressed to the correct number of significant figures? (1pt)
- Convert 1.8 g to megagrams. (1pt)
- How many milligrams are in 0.36g? (1pt)
- Convert 1.45gal to milliliter ($1\text{L} = 1.060\text{qt}$ and $4\text{qt} = 1\text{gal}$) (1pt)
- A chemistry student weighs 150 lb. How many kilograms does the student weigh? (1pt)
- Express the following in scientific notation (10pts)
 - 8,319
 - 21,467
 - 5,300,000
 - 0.0005047
 - 0.001910
 - 58,496
 - 83,000,000
 - 0.0000009
 - 0.720
 - 0.89
- Convert following to regular notation (5pts)
 - 8.2×10^5
 - 5.72×10^8
 - 58.85×10^7
 - 8.956×10^{-4}
 - 5.0×10^{-2}

9. In the following calculations round your answer to the appropriate number of sig.fig. and use a scientific notation: (6pts)

- a) $1.67/26.38 =$
- b) $(3.26 + 4.1) =$
- c) $187.5 - 57.92 =$
- d) $653 / (5.75 \times 10^{-8}) =$
- e) $(3.6 \times 10^{-4}) \times (3.678 \times 10^6) =$
- f) $850,000 - (9.0 \times 10^5) =$

10. What is the number of significant figures in each of the following measurements? (6pts)

- a) 4867 mi
- b) 98 mL
- c) 3900 g
- d) 0.00000006 cm
- e) 0.7 min
- f) 4.74×10^{19} atoms

11. Classify each of the following as an element, a compound, a homogeneous mixture, or heterogeneous mixture: (8pts)

- a) hydrogen gas
- b) seawater
- c) helium gas
- d) sodium chloride (table salt)
- e) a bottle of soft drink
- f) a milkshake
- g) air in the bottle
- h) concrete

12. Write the numbers represented by the following prefixes: (7pts)

- a) mega –
- b) kilo –
- c) centi –
- d) milli –
- e) micro –
- f) nano –
- g) pico –

13. Convert the following temperatures: (10pts)

- a) $113\text{ }^{\circ}\text{C}$ to K =
- b) $89\text{ }^{\circ}\text{F}$ to C =
- c) 4.2 K to C =
- d) $-273.15\text{ }^{\circ}\text{C}$ to F =
- e) $102\text{ }^{\circ}\text{F}$ to K =

14. Calculate the density of Bromine if 568 g of the substance occupies 188 mL? (5pts)

15. Carry out the following conversions: (10pts)

- a) 185 nm to meters
- b) 71.2 cm^3 to m^3
- c) 62 m/s to miles per hour (mph)
- d) 242 lb to milligrams
- e) 7.2 m^3 to L

16. What are the SI Base units for: (4pts)

- a) Length
- b) Mass
- c) Time
- d) Temperature