Practice Problems: Significant Figures ~ Scientific Notation ~ Unit Conversions

1. *Without changing the number of significant figures, express each of the following values in scientific notation. Within the parentheses, state how many significant figures are in that value.*

a) 123,430.0 _____ ( )

b) 33375 _____ ( )

c) 506.43 _____ ( )

d) 0.0100 _____ ( )

e) 0.03000111 _____ ( )

f) 12.34 _____ ( )

g) 0.0007 _____ ( )

h) 8677.5 _____ ( )

i) 350.053 _____ ( )

j) 0.000070 _____ ( )

2. *Perform the mathematical operation indicated. Express each answer with the appropriate number of significant figures/decimal places.*

a) $0.3133 \times 3.91 \times 3.200 \times 444 =$

b) $\dfrac{(0.0072)(4.022 \times 10^{3})}{(9.03 \times 10^{2})} =$

c) $\dfrac{(1.23 \times 10^{4})(1.90 \times 10^{-3})}{(0.033)(5.00 \times 10^{2})} =$

d) $44.79 - 2.3 - 0.0045 =$

e) $234.56 + 1.11 + (3.2 \times 10^{2}) =$

f) $123 + 33.0033 + (2.3 \times 10^{-1}) - (7.900 \times 10^{3}) =$

g) $\dfrac{(5.004 \times 10^{1})(-1.314 \times 10^{-3})}{(5.89 \times 10^{7})(6.2 \times 10^{-3})} =$

3. *Work the following unit conversions.*

a) 5.6×10^{1} mL to quarts

b) 98.76 inches to m

c) 7.7×10^{1} μm to inches

d) 1.234 kg to milligrams

e) 5432.6 micrograms to mg

f) 123.8 micrometers to cm

g) 1.25 grams/mL to kg/L