

CHM 111 Worksheet Extra Credit

Chapter 1: Matter, Measurement and Problem solving

Name: _____

3. Carry out the following mathematical operations and report your final answer in the correct number of sig figs. Assume that all numbers are measurements.

a) $24.6/7.1 + 1.23/5.27 =$ _____ **3.7** _____

b) $0.0021 - 1.05 \times 10^{-1} =$ _____ **-.103** _____

c) $(8.57 \times 10^3) / (0.035 \times 10^{-4}) =$ _____ **2.4×10^9** _____

d) $7.56 \times 10.064 \div 1.297 =$ _____ **58.7** _____

e) $1345.7 - 222.341 + 100 =$ _____ **1200** _____

f) $(27.09 - 25.6)/27.09 =$ _____ **.055** _____

6. Carry out the following conversions. Make sure that the final answer is expressed in the correct number of significant figures.

a) 125 kg to pounds

276 lbs

b) 90. km/hour to miles/hour

56 mile

c) If light travels at a speed of 3.00×10^8 meter/second, how far can light travel (in feet) in a nanosecond.

.984 ft

7. Diamond has a density of 3.53 g/cm^3 . What is the volume of a 3.00 carat diamond ring?

.170 ml

8. Gas is sold for 1.18 € (euro) per liter in Madrid, Spain. Your rental car needs 13.50 gallons. The current exchange rate is 1 € = 1.12 US Dollars. How much will your credit card be charged in American dollars?

\$67.5

9. Solumedrol (used to treat severe allergies) is given as 1.5 mg of drug /kg of body weight. A child weighing 38.5 pounds needs a dose. Solumedrol is a liquid and is available as 125 mg of drug / 2 mL of solution. How many mL must the nurse administer?

.42 ml

10. Phenytoin or Dilantin is an anticonvulsant. A patient needs 0.300 g per day. Phenytoin is available as 50 mg of Dilantin / 2 mL. of solution How much solution would the nurse administer in a day?

12 ml

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11. A standard gold bar weighs 12.4 kg. The density of gold is 19.3 g/mL. What is the volume of a gold bar?
If an ounce of gold is worth \$1255, what is the value of a bar of gold?

642 mL

Using that there is 31.103 g = 1 troy ounce

Gold bar is worth \$500,300

12. Carry out the following temperature conversions

a) -15°F to $^{\circ}\text{C}$.

b) 900. K to $^{\circ}\text{C}$

c) 98.6°F to $^{\circ}\text{C}$ and K

13. Aluminum has a density of 2.70 g/mL.

What is the density in g/cm^3 ?

What is the density in pounds/ ft^3 ?

168 pounds/ ft^3