ARABIA MOUNTAIN HIGH SCHOOL

School of Engineering, Medicine, and Environmental Studies

AP CHEMISTRY SUMMER ASSIGNMENT

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AP Chemistry Summer Assignment #1

1. How many significant figures are there in each of the following values?

a. 0.002330
b. 13.00
c. 322.1221
d. 1204.30
e. 0.0002
f. 2200.0
g. 0.0331120

2. Use exponential notation to express the number 22,100,000 with:

a. one significant figure
b. two significant figures
c. three significant figures
d. six significant figures

3. Perform the indicated calculations on the following measured values, giving the final answer with the correct number of significant figures.

a. 16.81 + 3.2257
b. 324.6 x 815.991
c. 2.85 + 3.4621 + 1.3
d. 7.442 - 7.429
e. 1.65 x 14
f. 27 / 4.148
g. [(3.901 - 3.887) / 3.901] x 1.00
h. 6.404 x 2.91 x (18.7 - 17.1)

4. Using conversion factors, convert 3.5 quarts to:

a. liters
b. milliliters
c. microliters
d. cubic centimeters

5. Using conversion factors, convert 4.2 yards to:

a. meters
b. centimeters
c. micrometers
d. kilometers

6. If you put 8 gallons of gas in your car and it cost you a total of $9.20, what is the cost of gas per liter?

7. A runner can run a 5.0 kilometer race in a time of 21 minutes and 22 seconds. What is the runner's speed in miles per hour?

8. A 5lb. bag of flour costs $.89. What is the cost of flour per kilogram?

9. A radio station broadcasts at a frequency of 107.9 megahertz. What is the broadcast frequency in gigahertz?

10. During a recent baseball game, a pitcher threw a fastball that had a velocity of 93.7 mph. Calculate the velocity in meters / second.

11. Which of the following is greater:

a. 35 kg or 3500 g?
b. 60000 mL or 6000 L

12. If a student weighs 185 lbs., what is his mass in micrograms?

13. Perform the following temperature conversions:

a. 300 Kelvin to Fahrenheit
b. 300 Fahrenheit to Kelvin
c. -40 Fahrenheit to Celsius
d. -100 Celsius to Kelvin
e. 1555 Kelvin to Celsius
f. 0 Kelvin to Fahrenheit

14. Perform the following temperature conversions:

a. 16 Celsius to Fahrenheit
b. 305 Kelvin to Fahrenheit
c. 0.0 Fahrenheit to Celsius
d. 150 Fahrenheit to Kelvin
e. -45 Celsius to Kelvin
f. 920 Kelvin to Celsius

15. A sample of motor oil with a mass of 440 g occupies 500 mL. What is the density of the motor oil?

16. The density of an object is 16.3 g/mL. Its volume is 0.27 L. What is the mass of the object?

17. An object weighing 4.0 lbs occupies 1700 mL.. What is the density of the object in g/mL?

18. The density of the earth is about 3.5 g/cm^3. If the earth has a radius of 7000 miles, what is its mass?

19. Which of the following is less:

a. 8.7 g/mL or 6.1 microgram / microliter

b. 400000 kg/cm^3 or 0.4 mg/ cm^3