

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

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/cc. 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/cc or 0.4 mg/cc