Honors Chemistry Summer Review for the 2019-20 School Year

To better prepare yourself for Honors Chemistry, it is suggested you review/familiarize yourself with the topics/questions below. These topics have been covered in previous science classes; therefore, they will be covered in a brief manner followed by a test during the first 2 weeks of school. There are practice problems to help asses your review. Answers will be posted on the school website under Summer Assignments for Honors Chemistry.

Test Review Questions/Topics

- What are the steps of the Scientific Method?
- Differentiate and give examples of qualitative and quantitative data.
- How do you classify matter?
- Compare and contrast particles of a solid, liquid, and gas.
- How can you determine whether a change/property is chemical or physical?
- Differentiate between the following: Mass vs. Weight, Accuracy vs. Precision
- What are the SI base units and what do they measure?
- What are the SI prefixes and their values? How do you convert between them?
- How do you convert between scientific notation and regular notation?
- How are density problems solved? Know how to solve algebraic equations.
- Know how to properly graph with labels and finding the slope.
- What is the atomic number and mass number of an element? How do you determine the # of protons, neutrons, and electrons?

Scientific Notation
Express each of the following in standard numerical form.

1. 7.2×10^3

2. 9.35×10^{-4}

3. 8.3×10^{-2}

4. 2.6×10^1

5. 4.852×10^2

6. 8.57×10^{-1}

Express each of the following in scientific notation.

7. 87,000

8. 0.00035

9. 280

10. 2547

11. 0.0053

12. 0.013254

Compute the following.

13. $(6.02 \times 10^{23}) (8.65 \times 10^4) =$

14. $(6.02 \times 10^{23}) (9.63 \times 10^{-2}) =$

15. $\dfrac{1.0 \times 10^{-12}}{4.2 \times 10^{-6}} =$

16. $\dfrac{(5.4 \times 10^4) (2.2 \times 10^7)}{4.5 \times 10^5} =$

17. $\dfrac{(6.02 \times 10^{23}) (-1.42 \times 10^{-15})}{6.54 \times 10^{-6}} =$

Algebraic Equations: *Solve each of the following expressions for x (x=?).*

1. 2x − 25 = 8

2. 3x = 4y + 8 *(if y = 2)*

3. 8 = 5/x

4. H = W Q x

5. Y = (T + 8)/x

6. 200 = x/5

Density Problems

1) A metal cylinder has a volume of 560 mL and a density of 3.2 g/mL. What is the mass of the cylinder?

2) A sample of unknown liquid has a mass of 1500g and a density of 2.9 g/mL. What is the volume?

3) A bottle of water has a volume of 560 mL and a mass of 1250 g. What is the density?

4) A wooden block has a mass of 986 g and a density of 16 g/ cm^3. What is the volume?

5) A wooden block has a mass of 562 g and a volume of 72 cm^3. What is the density?