Unit 1 -Topic 1
Diagnostic Math Assignment

Please complete the following to the best of your ability. I'm using this as a tool to determine your math skills as Chemistry requires a strong math background. This assignment will help me help you in the course. Circle all of your final answers if a space isn't already provided.

1. Convert the following to %:
   a) 0.36

   b) 1/4

   c) 0.002

   d) 5/6

   e) 1.74

2. What is 10% of 65? _____

3. If 10% of a number is 65, what is the number? _____

4. Conversions:
   a) If there are 1000 mg in 1 gram, how many mg are in 5.2 grams?

   b) How many mg are in 0.00024 grams?

   c) If there are 100 cm in 1 meter, how many square cm (cm^2) are in a square meter (m^2)?

5. Oranges cost $4.50 per dozen.
   a) How much would 2 dozen cost?

   b) How much would 1/2 dozen cost?

   c) How much would 7 oranges cost?

6. The ratio of boys to girls in a class is 5:2.
   a) If the number of boys is 30, what is the number of girls?

   b) If the number of girls is 7, what is the number of boys?

   c) If the total number of kids in the class is 35, what is the number of boys?

7. If the temperature of a solution goes up 25° in 7 minutes, what is the rate of change of temperature? (rate = temperature change / time)

8. How long will it take to heat water 10 degrees if we are heating it at a rate of 0.5° per minute?

9. Solve for x. $(325) = x(4.16)(42-10)$

10. Solve for R. $(0.1)R = (.03)(19)$

11. Solve for Z. $\dfrac{(101.3)(12)}{273} = \dfrac{Z(24)}{310}$

12. Solve for M_1. $\dfrac{(101.3)(12)}{M_1} = \dfrac{98.65(36)}{310}$