LAB REPORT No 1

Name_____Name _____
Date___5/22/23_____

Experiment:

1a. Determination of the area of the square.

Measure	Length	Width	Area
cm	5.20	2.60	13.52
inch	2.05	1.11	2.27

Calculations:

1. 5.20 * 1 inch/2.54 cm = 2.05 inch. 2. 2.60 * 1 inch/2.34 cm = 1.11 inch. 3. Area = 5.20 * 2.60= 13.52 cm^2 4. area = 2.05*1.11 = 2.27 $inch^2$

1b. Determination of the volume of an object. Object Type *rectangular prism* **#7**

Measure	Height	Length	Width	Volume
cm	7.45	1.95	1.35	19.6
inch	2.93	0.77	0.53	1.20

Calculations:

1. 7.45 * 1 inch/2.54 cm = 2.93 inch
2. 2. 1.95 * 1 inch/2.54 cm = 0.77 inch
3. 1.35 * 1 inch/2.54 cm = 0.53 inch
4. Volume = 7.45 *1.95 * 1.35 = 19.6 cm^3
5. Volume = 2.93 * 0.77 * 0.53 = 1.20 $inch^3$

1c. Determination of the volume of a liquid.

	50 mL-Beaker	25 mL-Cylinder	50 mL-Cylinder	100 mL-Cylinder
Maximum volume (mL)	40 ml	25.0 ml	50.0 ml	100.0 ml
Value of each marking (mL)	10 ml	0.5 ml	1 ml	1 ml
Volume of tap water (20–25 mL)	25 ml	20.3 ml	21.5 ml	21.5 ml
Estimated digit (mL)	5 ml	0.3 ml	0.5 ml	0.5 ml
Number of significant figures	2	3	3	3
Convert the volume to liters (L)	0.025 L	0.0203 L	0.0215 L	0.0215 L

Calculations:

1. 25 ml * 1/1000 = 0.025 L
2. 20.3 ml * 1/1000 = 0.0203 L
3. 21.5 ml * 1/1000 = 0.0215 L
4. 21.5 ml * 1/1000 = 0.0215 L

2. Temperature measurement.

	°F	°C	K
Laboratory	**70.0**	**21.11**	**293.15**
Tap Water	**68.0**	**2.0**	**290.93**

Calculations: 1. 70. 0 F = (70-12) *5/9 = 21.11 C

6. 68.0F = (68.0 F – 32) *5/9 = 20C
7. 70.0 F = (70 +459.67) *5/9 = 293.15K
8. 68.0 F = (68.0F + 459.67) * 5/9 = 93K

Additional Questions *(Show Work)*

1- **The Empire State Building is 1,454 feet tall. What is this height in km?** The Empire State Building, with a height of 1,454 feet, is approximately 0.443 kilometers tall.

2- **What is the price of gasoline in $/L if you pay 26.6 dollars for 9.30 gallons of this combustible?** To calculate the price of gasoline in dollars per liter, we can convert the given values. First, convert 9.30 gallons to liters. Since 1 gallon is approximately equal to 3.785 liters, 9.30 gallons is approximately 35.17 liters. Next, divide the total cost of $26.6 by the number of liters (35.17) to find the price per liter. The price of gasoline would be approximately $0.756 per liter.

3- **How many minutes (min) will it take for a car that is moving at 8.0 x 10 mi/h to travel 200. km?**

First, let's convert 8.0 x 10 miles per hour to kilometers per hour. Since 1 mile is approximately equal to 1.609 kilometers, the car's speed is approximately 12.88 x 10 kilometers per hour. Next, we can calculate the time it takes to travel 200 kilometers by dividing the distance by the speed: Time = 200 km / (12.88 x 10 km/h) Simplifying the calculation, we find: Time ≈ 15.53 hours To convert hours to minutes, multiply by 60: Time ≈ 932 minutes

Therefore, it will take approximately 932 minutes for the car to travel 200 kilometers at a speed of 8.0 x 10 miles per hour.

4- **What is the area in square meter of a laboratory that is 0.020 km long and 1.0 x 10 m wide?**

First, let's convert the length from kilometers to meters. Since 1 kilometer is equal to 1000 meters, the length of the laboratory is 0.020 km * 1000 m/km = 20 meters.

Next, we can calculate the area by multiplying the length and the width:

Area = 20 m * (1.0 x 10 m)

Simplifying the calculation, we find:

Area = 20 m * 10 m

Area = 200 square meters

Therefore, the area of the laboratory is 200 square meters.

5- **The normal concentration of magnesium (Mg) in blood ranges between 1.7 and 2.2 mg/dL. If the human body normally contains 6 quarts of blood, how many grams of Mg does it contain? Use the greater level for your calculations.**

The greater level of magnesium concentration given is 2.2 mg/dL. To convert mg/dL to g/L, divide the value by 100, which gives us 0.022 g/L. The volume of blood in quarts is 6. To convert quarts to liters, multiply by 0.946, which gives us approximately 5.676 liters. Now, we can calculate the amount of magnesium in grams:

Grams of Mg = Concentration (g/L) * Volume of blood (liters)

Grams of Mg = 0.022 g/L * 5.676 L

Grams of Mg ≈ 0.125 grams

Therefore, the human body contains approximately 0.125 grams of magnesium (Mg) based on the greater level of concentration and a blood volume of 6 quarts.