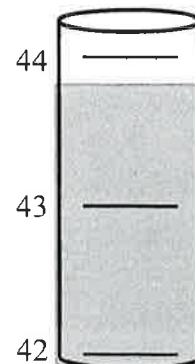
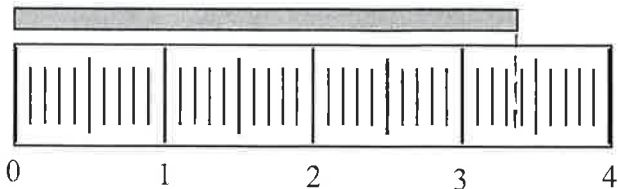


Unit 1 Quiz

30 pts Possible

1. Given the provided measuring tools, determine the length (left) and the volume (right) readings to the appropriate number of significant figures. Place your answers in the blanks.



4
Length = 3.36 cm
(3 sig figs)

Volume = 43.8 mL
(3 sig figs)

2. Determine the number of significant figures in the following; place the number in the blank:

6
a. 50.708 g 5

b. 4050 Liters 3

c. 0.0692 kg 3

3. Get this: Mr. Cowhey has a mass of 58 kg. Determine his mass in milligrams.

3
$$58 \text{ kg} \times \frac{1000 \text{ g}}{1 \text{ kg}} \times \frac{1000 \text{ mg}}{1 \text{ g}} = \underline{58000000 \text{ mg}} = \underline{5.8 \times 10^7 \text{ mg}}$$

3. Upon a recent visit to Mars, you run out of petrol for your spacecraft. So you order 74 grams of petrol. A Martian informs you that the unit system on Mars is different than on Earth. The Martian asks; "How many zooms of petrol do you need?" Use the following information to form conversion factors in order to calculate the amount of zooms of petrol you should order. Clearly show all conversion factors. **PSYW (FYI: PSYW = Please Show Your Work)**

4.0 zings = 8.0 grams

2.0 warps = 7.0 zings

8.0 zooms = 5.0 warps

5
$$74 \text{ g} \times \frac{4.0 \text{ zings}}{8.0 \text{ g}} \times \frac{2.0 \text{ warps}}{7.0 \text{ zings}} \times \frac{8.0 \text{ zooms}}{5.0 \text{ warps}} = 16.9 \text{ zooms}$$

(17 zooms)

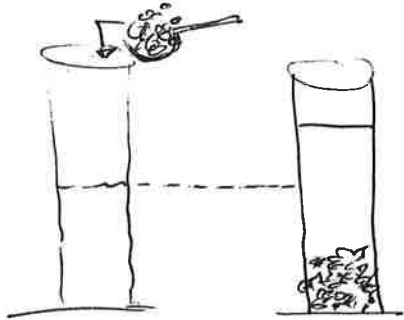
4. Identify the following statements as describing a chemical (C) or a physical (P) property or change. Place a P or a C in the blank at the right.

6
a. Lime is a medium-strength base that chemically reacts with metals such as aluminum. C

b. Charcoal is a light-weight, black solid that is very porous. P

c. Octasulfur is a soft, bright-yellow, odorless solid. P

5. In a lab experiment, a lab group adds water to a graduated cylinder. The volume reading is 52.54 mL. They determine the mass of the graduate and water to be 137.52 g. They then add several beads of an unknown metal and determine the new volume to be 88.70 mL and the new mass to be 310.73 g. Determine the density of the unknown metal. For full credit, show all your calculations in an organized fashion. Express your final answer for density with the appropriate unit and to the appropriate number of significant digits. Underline, circle or box your answer.



$$V = 52.54 \quad V = 88.70 \text{ mL}$$

$$\Delta V = 36.16 \text{ mL}$$

2 pts

$$\text{mass beads} = 310.73 - 137.52$$

$$= 173.21 \text{ g} \quad 1 \text{ pt}$$

$$\text{Density} = \frac{173.21 \text{ g}}{36.16 \text{ mL}} = 4.790 \text{ g/mL}$$

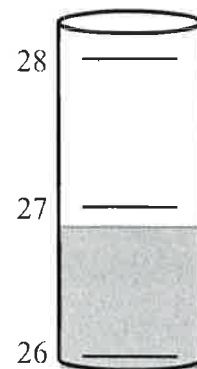
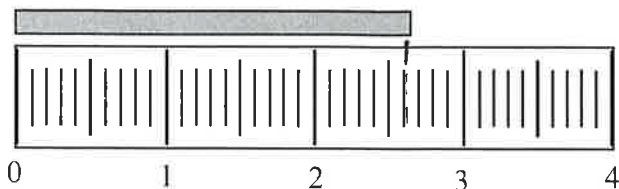
2 pt 3 pt

→ (4 sig Figs)

1 pt

Unit 1 Quiz

1. Given the provided measuring tools, determine the length (left) and the volume (right) readings to the appropriate number of significant figures. Place your answers in the blanks.



4

Length = 2.62 cm
(3 sig figs)

Volume = 26.8 mL
(3 sig figs)

6

2. Determine the number of significant figures in the following; place the number in the blank:

a. 3080 Liters 3

b. 0.0253 kg 3

c. 30.406 g 5

3

3. Get this: Mr. Sinde is 188 cm tall. Determine his height in kilometers.

$$188 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}} \times \frac{1 \text{ km}}{1000 \text{ m}} = 0.00188 \text{ km} = 1.88 \times 10^{-3} \text{ km}$$

5

3. Upon a recent visit to Mars, you run out of petrol for your spacecraft. So you order 42 grams of petrol. A Martian informs you that the unit system on Mars is different than on Earth. The Martian asks; "How many zooms of petrol do you need?" Use the following information to form conversion factors in order to calculate the amount of zooms of petrol you should order. Clearly show all conversion factors. **PSYW (FYI: PSYW = Please Show Your Work)**

6.0 zings = 5.0 grams

8.0 warps = 6.0 zings

7.0 zooms = 3.0 warps

$$42 \text{ grams} \times \frac{6.0 \text{ zings}}{5.0 \text{ grams}} \times \frac{8.0 \text{ warps}}{6.0 \text{ zings}} \times \frac{7.0 \text{ zooms}}{3.0 \text{ warps}} = 156.8 \text{ zooms}$$

(160 zooms)

6

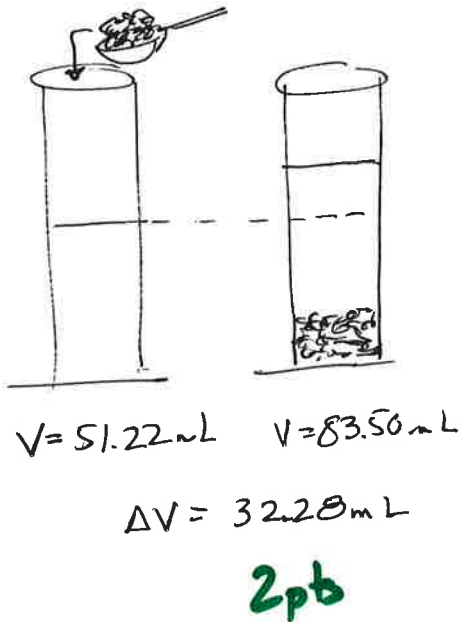
4. Identify the following statements as describing a chemical (C) or a physical (P) property or change. Place a P or a C in the blank at the right.

a. Sulfur reacts with nearly all elements except for the noble gases, gold, tellurium, platinum, iridium, and nitrogen. C

b. Diamond is a hard solid with an outstanding ability to disperse light. P

c. At high temperatures, calcium carbonate decomposes into calcium hydroxide. C

5. In a lab experiment, a lab group adds water to a graduated cylinder. The volume reading is 51.22 mL. They determine the mass of the graduate and water to be 132.42 g. They then add several beads of an unknown metal and determine the new volume to be 83.50 mL and the new mass to be 388.58 g. Determine the density of the unknown metal. For full credit, show all your calculations in an organized fashion. Express your final answer for density with the appropriate unit and to the appropriate number of significant digits. Underline, circle or box your answer.



$$\begin{aligned} \text{mass beads} &= 388.58 - 132.42 \\ &= 256.16 \text{ g} \end{aligned}$$

$$\text{Density} = \frac{256.16 \text{ g}}{32.28 \text{ mL}} = 7.936 \text{ g/mL}$$

(7.9355638... $\frac{\text{g}}{\text{mL}}$)

4 sig figs 1 pt

