

REVIEW QUESTIONS

## Chapter 1

1. Determine the number of significant digits in each of the following numbers:

a) 503 \_\_\_\_\_ b) 63,000 \_\_\_\_\_

c) 0.0051 \_\_\_\_\_ d) 0.03002 \_\_\_\_\_

e) 4.100 \_\_\_\_\_ f) 0.0810 \_\_\_\_\_

2. Round each of the following numbers to 2 significant figures:

a) 93.643 \_\_\_\_\_ b) 0.02857 \_\_\_\_\_

c) 12153 \_\_\_\_\_ d) 158.35 \_\_\_\_\_

3. Perform the following operations with the correct number of significant digits:

a)  $(0.0394)(12.85) =$

b)  $\frac{42.7853}{59.6} =$

c)  $12.62 + 1.5 + 0.25 =$

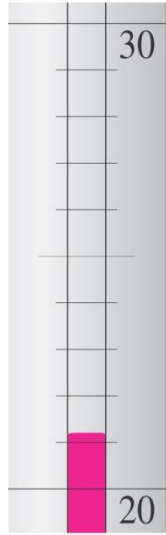
d)  $\frac{284 \times 0.293}{45} =$

4. Express each of the following numbers in scientific notation, with 3 significant figures:

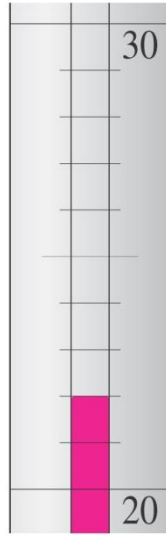
a) 2,900,000 \_\_\_\_\_ b) 0.005865 \_\_\_\_\_

c) 0.000004563 \_\_\_\_\_ d) 410870 \_\_\_\_\_

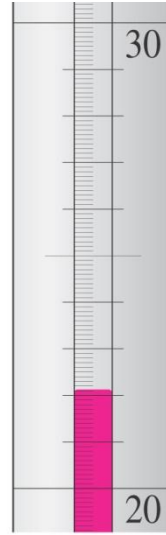
5. Record each of the following measurements to the correct number of digits:



(a)



(b)



(c)

6. Convert each of the following units:

a) 1.78 kg to  $\mu\text{g}$

b) 0.85 g to mg

c) 1.65 lbs to g (1 lb = 454 g)

d) 2.34 gal to mL (1 gal = 3.78 L)

7. A 13.5 mL sample of an unknown liquid has a mass of 12.4 g. What is the density of the liquid?
8. The density of ether is 0.714 g/mL. What is the mass of 1.45 L of ether?
9. What is the capacity of a gasoline container (in gal) if it contains 117 lb of gasoline with a density of 0.60 g/mL? (1 lb=454 g; 1 gal=3.78 L)
10. A car travels at 55 miles per hour and gets 11 km/L of gasoline. How many gallons of gasoline are needed for a 3.0-hour trip? (1 mi=1.609 km; 1 gal=3.78 L)

11. Sterling silver is 92.5% silver by mass with a density of  $10.3 \text{ g/cm}^3$ . If a cube of sterling silver has a volume of  $27.0 \text{ cm}^3$ , how many ounces of pure silver are present? (1 oz=28.4 g)

12. The following nutrition information is listed on a box of crackers:

Serving size: 0.5 oz (6 crackers)

Fat: 4 g per serving

Sodium: 140 mg per serving

a) If the box has a net weight of 8.0 oz, how many crackers are in a box?

b) If you ate 10 crackers, how many ounces of fat are you consuming?

c) How many grams of sodium are used to prepare 50 boxes of crackers?