Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 2 - Measurement Review**

1) Put the following into scientific notation:

a) 65 000 b) 0.0076 c) 23 d) 0.0000001 e) 4 f) 0.0407

2) Put the following into standard notation:

a) 3.7 x 10-3 b) 9.99 x 105 c) 2.467 x 102 d) 6 x 100 e) 5.44 x 10-6 f) 8 x 106

3) Put the following into scientific notation:

a) 25.67 x 104 b) 345.8 x 10-3 c) 0.098 x 10-2 d) 0.234 x 105

4) Measure the line using a ruler to the correct number of sig figs:

5) How many significant figures in each measurement?

a) 56.7mL b) 100g c) 102kg d) 0.0039L e) 100.0g f) 0.004056cm g) 278.8300

6) How many significant figures in each measurement?

a) 4.50 x 104 b) 1.00 x 102 c) 9.867 x 10-8

7) Add, Subtract, Multiply, or Divide. Express answers using correct significant figures.

a) 42 x 8.0 b) 100 ÷ 6.0 c) 10.2 + 4.57 d) 0.00567 – 0.0003 e) (6.1)(0.0313)(200.0)

8) Add, Subtract, Multiply, or Divide. Express answers in scientific notation using correct significant figures.

a) (1.85 x 103)(2.4 x 10-4) b) (3.4 x 10-5) c) (9 x 101) + (5.6 x 101) d) 8.34 x 10-3 – 5.44 x 10-4

(4.33 x 101)

9) What is the difference between accuracy and precision?

10) Complete the following SI table:

|  |  |  |
| --- | --- | --- |
| Written Prefix | Prefix Symbol | Equivalent multiplier |
|  |  | 106 = 1 million |
|  | k |  |
| hecto |  |  |
|  |  | 101 = ten |
| (base) | no prefix |  |
|  | d |  |
|  |  | 10-2 = 1 hundredth |
| milli |  |  |
|  |  | 10-6 = 1 millionth |

11) Complete the following conversions:

a) 12.6 dag = \_\_\_\_\_\_\_\_\_\_cg b) 0.97mL = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_hL

c) 4.56m = \_\_\_\_\_\_\_\_\_\_\_\_km d) 0.00555Ms = \_\_\_\_\_\_\_\_\_\_\_\_\_s

e) 3.2 x 105μm = \_\_\_\_\_\_\_\_\_\_\_\_\_dm f) 1.34 x 10-2L = \_\_\_\_\_\_\_\_\_\_\_daL

12) Complete the following double unit conversions:

a) 1.3kg/s = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_g/ds b) 0.99m/ds = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_km/ms

c) 8.6 x 102Mg/L = \_\_\_\_\_\_\_\_\_\_\_\_\_hg/daL

13) What is the density (in g/cm3) of a piece of cork that has a mass of 0.650 g and a volume of 2.71 cm3?

14) Bismuth phosphate has a density of 6.32 g/cm3. What is the mass (in g) of 25.9 cm3 of this substance?

15) Cerium sulfate has a density of 3.17 g/cm3. Calculate the volume (in cm3) of 599 g of this substance.

16) Does a kg of feathers have the same mass as a kg of iron? What truly is different between the two?

17) Aluminum, because of its light density and strength, has been used for making aircrafts. It has a density of 2.70 g/cm3. Magnesium has a similar properties, and it has a density of 1.70 g/cm3. What is the difference in mass if 1.00 x 103 cm3 of Mg are used rather than 1.00 x 103 cm3 of Al?

Answers:

1) a) 6.5 x 104 b) 7.6 x 10-3 c) 2.3 x 101 d) 1 x 10-7 e) 4 x 100 f) 4.07 x 10-2

2) a) 0.0037 b) 999 000 c) 246.7 d) 6 e) 0.00000544 f) 8 000 000

3) 2.567 x 105 b) 3.458 x 10-1 c) 9.8 x 10-4 d) 2.34 x 104 4) answer should have 3 sig figs

5) a) 3 b) 1 c) 3 d) 2 e) 4 f) 4 g) 7 6) a) 3 b) 3 c) 4

7) a) 340 b) 20 c) 14.8 d) 0.0054 e) 38 8) a) 4.4 x 10-1 b) 7.9 x 10-7 c) 1.5 x 102 d) 7.80 x 10-3

9) see accuracy and precision notes 10) see metric notes

11) a) 12 600cg b) 0.0000097hL c) 0.00456km d) 5550s e) 3.2dm f) 1.34 x 10-3daL

12) a) 130g/ds b) 0.0000099km/ms c) 86000000hg/daL

13) 0.240g/cm3 14) 164g 15) 189cm3 16) Yes. The two have different volumes because they have different densities 17) 1.00 x 103g