# Chapter 5 Review Questions-Answer Key... Brought to you by Eli Nobler.

# Vocabulary:

#### Define the following terms.

**1) Scientific notation** is a method for making very large or very small numbers more compact and easier to write.

**2)** The **units** part of a measurement tells us what scale or standard is being used to represent the results of the measurement.

3) The English System is a measurement system that is used in the United states.

**4)** The **metric system** is measurement system used practically worldwide. It is based off of powers of 10.

**5) SI units** is an International System of units based on the metric system and on units derived from the metric system.

#### Group each term with a corresponding term.

**6)** 9, 11 **7)** 8, 10

**8)** 7, 10

**9)** 6, 11

**10)** 7, 8

**11)** 6, 9

#### Give the rules for each of the following terms.

**12)** 1. Nonzero integers. Nonzero integers always count as significant figures.

2. Zeros. There are three classes of zeros:

A. Leading zeros are zeros that precede all of the nonzero digits. They never count as significant figures

B. Captive zeros are zeros that fall between nonzero digits. They always count as significant figures.

C. Trailing zeros are zeros at the right end of the number. They are significant only if the number is written with a decimal point.

3. Exact numbers. Often calculations involve numbers that were not obtained using measuring devices but were determined by counting.

13)

if the digit to be removed

- is less than 5, the preceding digit stays the same
- is equal to or greater than 5, the preceding digit is increased by 1

in a series of calculations, carry the extra digits through to the final result and then round off

## Give an example of the following terms.

14) 1 inch : 2.54 cm

**15)** 1 inch = 2.54 cm

**16)** dimensional analysis

## Give the boiling and freezing temperatures for water for each of the following terms.

**17)** boiling =  $212^{\circ}$  F freezing =  $32^{\circ}$  F

**18)** boiling =  $100^{\circ}$  C freezing =  $0^{\circ}$  C

**19)** boiling = 373 K freezing = 272 K

20) density = mass / volume

## **Chapter questions:**

**1)** 4.2 X 10<sup>7</sup>

2) The metric system is based on powers of ten, leaving it easy to use scientific notation.

**3)** Mass is the quantity of matter present in an object, it uses grams. Volume is the amount of three-dimensional space occupied by a substance, it uses liters.

**4)** Certain numbers are digits in a number that the collective group all share. Uncertain numbers are the digits or digit in a number that the collective group varies. An example of significant figures is  $4.56 \times 1.4 = 6.384 \rightarrow 6.4$ 

**5)** 4.348 (needs to have 2 sig figs) goes to 4.3

6) 81 cm X (1 in / 2.54 cm) = 81 / 2.54 = 31.9 in

7)  $T_{C} = (T_{F} - 32) / 1.80 = 31 / 1.80 = 17.2^{\circ} C$ 

8) density = mass / volume = 127 / 92 = 1.4 g/mL

9) .42 micrograms

**10)** Leading zeros are zeros that precede all of the nonzero digits. Captive zeros are zeros that fall between nonzero digits. Trailing zeros are zeros at the right end of the number.

# Integrated questions:

1) 8.4 X 10<sup>20</sup> mg

**2)** 4.2 g

- 3) .75 mL
- **4)** 5.6 g/mL

5) An average of 86 minutes of homework a night. 2.58 X 10<sup>2</sup> minutes over 60 weeks.