Carmel High School
Honors Chemistry
Mr. Dooner

SI System and Conversions

*** the International System of Units(SI) is a revised version of the metric system that was adopted by international agreement in 1960.

*** the FIVE SI base units commonly used by chemists are the:

METER(m)
KILOGRAM(kg)
KELVIN(K)
SECOND(s)
MOLE(mol)

***** oftentimes, "common" metric units are used in chemistry**

***** the common metric units of LENGTH include the centimeter(cm), meter(m), and kilometer(km)**

***** the common metric units of VOLUME include the liter(L), milliliter(mL), cubic centimeter(cm^3), and microliter(uL)**

*****common metric units of MASS include the kilogram(kg), gram(g), milligram(mg), and microgram(ug)**

***** scientists commonly use two equivalent units of TEMPERATURE, the degree Celsius(C) and the Kelvin(K)**

KELVIN Scale: freezing point of water is 273.15 kelvins(K) and the boiling point is 373.15 kelvins(K)—no degree sign is used with kelvins

CELSIUS SCALE- freezing point is 0 C and boiling point of water is 100 C

***** notice that on both scales it is 100 degrees between boiling and freezing, therefore one degree Celsius is equivalent to one Kelvin**

***** the zero point on the Kelvin scale, 0 K, or ABSOLUTE ZERO, = (-) 273.15 C**

TO CONVERT: K = C + 273 or $T = t + 273$

PROBLEM SETS:

1. 27 C = ? K _____
2. 150 C = ? K _____
3. 90 C = ? K _____
4. 200 C = ? K _____
5. 0 C = ? K _____
6. 273 K = ? C _____
7. 100 K = ? C _____
8. 373 K = ? C _____
9. 0 K = ? C _____
10. 150 K = ? C _____

11. 15 km = ? cm _____

12. 3 L = ? mL _____

13. 150 cm = ? _____

14. 156.78 mm = ? cm_____

15. 27 mm = ? m _____

16. 30 L = ? mL _____

17. 1599 g = ? kg _____

18. 189 g = ? mg _____

19. 16 dL = ? mL _____

20. 12.5 cm = ? mm _____

21. Order the following units from smallest to largest, then express each measurement in terms of meters:

cm um km mm m nm dm pm

1.
2.
3.
4.
5.
6.
7.
8.