WS 7.6 *Name:_____p._____*

1. Determine the empirical formula of each compound:

Molecular Formula:	$C_{27}H_{24}O_9$	C_6H_6	C_3H_4	$C_{12}H_{24}O_4$	C_6H_{14}
Empirical Formula:	_____	_____	_____	_____	_____

2. A compound has the empirical formula C_2H_4O.
a. List some possible molecular formulas that would have this empirical formula:

b. If a compound has an empirical formula of C_2H_4O, and a molar mass of around 130 amu, what is the molecular formula of the compound?

c. If a compound has an empirical formula of C_2H_4O, and a molar mass of around 88 amu, what is the molecular formula of the compound?

d. If a compound has an empirical formula of C_2H_4O, and a molar mass that is between 170 amu and 200 amu, what is the molecular formula of the compound?

3. A compound has the empirical formula C_2H_3, and has a molar mass that is between 100 and 110 amu. What is the molecular formula of the compound?

4. Determine the empirical formula of a compound that contains 7.58 grams carbon per 1.70 grams hydrogen per 6.74 grams oxygen.

5. A compound is 46.14% carbon, 7.75% hydrogen, and 46.11% oxygen (by mass).
a. Calculate the empirical formula of the compound.

b. If the molar mass of the compound is between 400 and 500 amu, determine the molecular formula of the compound.

6. "Sodium pyrophosphate" is used in tartar control toothpaste – it prevents tartar from forming on your tooth enamel by reacting with (and removing) the magnesium and calcium ions from your saliva! It is also used as a food additive and is a component in some brands of detergent. A sample of this compound contains 16.63 grams of sodium, 11.21 grams of phosphorus, and 20.26 grams of oxygen. Calculate the empirical formula of this compound.