Name _____

Date _____ Pd ____

Chemistry – Unit 5 Worksheet 1

1. An old (pre-1987) penny is nearly pure copper. If such a penny has a mass of 3.3 g, how many moles of copper atoms would be in one penny?

2. Four nails have a total mass of 4.42 grams. How many moles of iron atoms do they contain?

3. A raindrop has a mass of 0.050 g. How many moles of water does a raindrop contain?

4. What mass of water would you need to have 15.0 moles of H_2O?

5. One box of Morton's Salt contains 737 grams. How many moles of sodium chloride is this?

6. A chocolate chip cookie recipe calls for 0.050 moles of baking soda (sodium bicarbonate). How many grams should the chef mass out?

7. Rust is iron(III) oxide. The owner of a l959 Cadillac convertible wants to restore it by removing the rust with oxalic acid, but he needs to know how many moles of rust will be involved in the reaction. How many moles of iron(III) oxide are contained in 2.50 kg of rust?

8. First-century Roman doctors believed that urine whitened teeth and also kept them firmly in place. As gross as that sounds, it must have worked because it was used as an active ingredient in toothpaste and mouthwash well into the 18th century. Would you believe it's still used today? Thankfully, not in its original form! Modern dentists recognized that it was the ammonia that cleaned the teeth, and they still use that. The formula for ammonia is NH_3. How many moles are in 0.75 g of ammonia? How many molecules?

9. Lead (II) chromate, $PbCrO_4$, was used as a pigment in paints. How many moles of lead chromate are in 75.0 g of lead (II) chromate? How many atoms of oxygen are present?

10. The diameter of the tungsten wire in a light bulb filament is very small, less than two thousandths of an inch, or about 1/20 mm. The mass of the filament is so very small – 0.0176 grams – that it would take 1,600 filaments to weigh an ounce! How many tungsten atoms are in a typical light bulb filament?

11. Two popular antacids tablets are Tums and Maalox. The active ingredient in both of these antacids is calcium carbonate. Tums Regular Strength tablets contain 0.747 g and Maalox tablets contain 0.600 g of calcium carbonate. How many more molecules of calcium carbonate does a Tums provide than a Maalox?