Chemistry Worksheet NAME: _____

Moles, Mass, Volume, and More. Block: _____

Show all work for problems that require calculations.

1. How many moles are 24.0 grams of oxygen?

   Ans. _____

2. At STP, what volume will the oxygen in (1) occupy?

   Ans. _____

3. What is the mass of 2.50 moles of hydrogen?

   Ans. _____

4. At STP, what volume will the hydrogen in (3) occupy?

   Ans. _____

5. How many moles of water could be formed from the materials in 1 and 3? (Hint: write out a balanced chemical reaction!)

   Ans: _____

6. What is the mass of the water produced in (5)?

   Ans: _____

7. When the water is produced, it is first a vapor that then condenses to a liquid. Before it condenses, what volume will the water vapor from (5) occupy at STP?

   Ans: _____

8. After the water in (7) condenses into a liquid, what volume of water will you have?

   Ans. _____

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9. You have a block of anthracite coal (pure carbon!) with a mass of 243 g. You submerge the coal in a graduated cylinder of water the initially has 41.4 mL of water in it, and the water level rises to 202.8 mL.

   a. How many moles of carbon do you have?

   Ans. _____

   b. What is the density of anthracite coal?

   Ans: _____

   c. If you burn the coal completely in sufficient oxygen to produce only carbon dioxide, how many moles of carbon dioxide will be produced?

   Ans: _____

   d. How many molecules of oxygen have you consumed to produce the carbon dioxide?

   Ans: _____

   e. What is the density of oxygen at STP?

   Ans: _____

   f. What is the mass of the carbon dioxide that you produced?

   Ans: _____

   g. What volume will the carbon dioxide occupy at STP?

   Ans: _____

   h. What is the density of carbon dioxide at STP?

   Ans: _____