Dougherty Valley HS Chemistry
Gas Laws – More Gas Stoichiometry

Worksheet #9

Name: **Period:** **Seat#:**

Directions:

- Helpful conversions: 1 cm^3 = 1mL, 1dm^3 = 1L
- Don't forget! You must show all work and units for conversions, gas laws, dimensional analysis, etc.
- Get an actual answer, including units! Box your answer!
- Some answers are provided at the end of the question. The answers are underlined.

1) Hydrogen sulfide occupies 278.2 cm^3 at 26 °C and standard pressure. If the hydrogen sulfide reacts with $MgCO_3$, what mass of $MgCO_3$ is required to react with all the hydrogen sulfide? *0.956g $MgCO_3$*

2) 3.27 moles of carbon dioxide are in a vessel of undetermined size at 106.3 KPa and 21.8 °C. What is the volume of the vessel? How many grams of propene (C_3H_6) would have to be combusted to produce that much CO_2? *75.4 L, 45.88g*

3) If 1.39 g of carbon monoxide is reacted with oxygen, what volume of carbon dioxide is produced at 12.3 °C at 107.4KPa? What volume of carbon dioxide would be produced? *1.09 dm^3*

4) If 14.4 dm^3 of ethane is combusted at 102.7 °C and 99.3KPa, how many grams of water will be produced? *24.8 g H_2O*

5) How many liters of C_8H_{18} is required to fill a 1.4 dm^3 airbag with CO_2 if the wrecker truck burns octane at STP? (Exhaust fumes are used to fill airbags to upright flipped tractor trailers.) *0.175 L C_8H_{18}*

6) A scuba diver dives with a tank containing 5L of air. Twenty-two percent of the air is oxygen. If the diver produces 1.62 mol carbon dioxide for every 2.05 mol of oxygen he/she inhales, what is the volume (at STP) of carbon dioxide produced if 4.2 L of air are consumed at 202.6 KPa and 14.7 °C? *1.38 L CO_2*

7) If 34.6g of Zn are reacted with an excess of hydrochloric acid at standard pressure, what is the temperature of the hydrogen gas produced if it occupies a 2.00 dm^3 container? *46.05 K*