Partial Pressures Practice

Name: _____

Date: _____

Hour: _____

1. During an experiment, 17.5 mL of oxygen gas were collected over water at room temperature (25°C) and 100.2 kPa of atmospheric pressure. The vapor pressure of water at this temperature is 2.6 kPa.
    a) What is the pressure of the "dry" oxygen gas?

        97.6 kPa

    b) How many moles of oxygen gas were produced?

        6.90×10^{-4} mol

    c) What is the molar volume of the oxygen gas at the conditions in the laboratory?

        25.4 L

2. Zinc metal reacted with hydrochloric acid and 48.5 mL of hydrogen gas were collected over water at 35°C and 95 kPa of pressure according to the balanced equation,
    $Zn + 2 HCl \rightarrow H_2 + ZnCl_2$. How many moles of HCl were used up in the reaction?

        0.00339 mol

3. A gas was collected in a 2.0 L container over water at 40°C and the pressure in the container was 105 kPa. What would be the volume of the gas at STP?

        1.68 L

4. A certain container contains 3 moles of hydrogen gas and 2 moles of oxygen gas. The total pressure in the container is 100 kPa. What is the partial pressure of hydrogen and of oxygen in the container?

        $P_{H2} = 60$ kPa
        $P_{O2} = 40$ kPa

5. Oxygen gas was collected over water at 25°C and 97 kPa by decomposing sodium chlorate:
        $2 NaClO_3 \rightarrow 2 NaCl + 3 O_2$
    If 1.45 L were collected, how many grams of $NaClO_3$ were decomposed?

        3.90 g