Gas Laws Practice Problems, Numero Tres

1. If temperature and pressure are held constant, the volume and number of moles of a gas are

   [A] inversely proportional   [B] equal   [C] independent of each other

   [D] not enough information given   [E] directly proportional

2. Use the following information to answer the next questions:
   A gas occupies 30. L at 2.0 atm pressure and 27°C.
   How many moles of gas are present in the sample?

   [A] 4.8 mol   [B] 9.2 mol   [C] 1.2 mol   [D] 2.4 mol   [E] 6.8 mol

3. An oxygen sample has a volume of 4.50 L at 27°C and 800.0 torr. How many oxygen molecules does it contain?

   [A] 5.8×10^{22} [B] 1.16×10^{22} [C] 2.32×10^{24}

   [D] 1.16×10^{23} [E] none of these

4. The volume of a sample of gas is 650. mL at STP. What volume will the sample occupy at 0.0°C and 950. torr?

   [A] 568 mL   [B] 476 mL   [C] 650. mL   [D] 520. mL   [E] none of these

5. A sample of an ideal gas containing 0.954 mol is collected at 742 torr pressure and 31°C. Calculate the volume.

6. A gas originally occupying 10.1 L at 0.925 atm and 25°C is changed to 12.2 L at 625 torr. What is the new temperature?

7. One mole of CO_2 at STP will occupy

   [A] 44 L   [B] 24.5 L   [C] 44 g   [D] 22.4 L   [E] 1.0 L

8. What do the initials STP stand for, and what are the numerical values of each?

9. A 37.4-mL sample of H_2 at STP would contain how many grams of hydrogen?

10. A 4.37-g sample of a certain diatomic gas occupies a volume of 3.00 L at 1.00 atm and a temperature of 45°C. Identify this gas.

    [A] N_2 [B] F_2 [C] Cl_2 [D] O_2 [E] H_2

[1] [E]

[2] [D]

[3] [D]

[4] [D]

[5] 24.4 L

[6] 47°C

[7] [D]

[8] standard temperature = 273 K
     pressure = 1 atm

[9] 3.37×10^{-3} g

[10] [B]