WS 6.5 Partial Pressures (Dalton's Law) don't forget units ***p* = (mol frac) x (P)**

1. A flask contains Ne at 542 mmHg together with Ar at 234 mmHg. What will the total pressure be? (use Dalton's law)

Ans ________

2. A tank is filled with oxygen and nitrogen. The total pressure of the tank is 6.45 atm, and the partial pressure of the nitrogen is 2.07 atm. What is the partial pressure of the oxygen? (use Dalton's law)

Ans ________

3. **a)** A mixture contains 1.00 moles of CO_2, 2.00 moles He, and 3.00 moles of CH_4. Which gas has the highest partial pressure? _____ Which gas has the lowest partial pressure? _____

b) If the total pressure of the mixture above is 12.0 atm, what is the P_{CO_2}? ____________

P_{He}? _____________ P_{CH_4}? ____________

4. **a)** 1.25 moles of N_2 and 6.41 moles of F_2 are placed together in a 128 L tank at 755 mmHg. What is N_2's mole fraction in the mixture? What is the partial pressure of the N_2?

a) Ans: ____________ ____________

b) What is F_2's mole fraction, and what is the partial pressure of the F_2?

b) Ans: ____________ ____________

c) What must the temperature (˚C) of the mixture be?

Ans ___________

5. **a)** 3.23 g of Ne and 4.19 g of CH_4 are placed together in a tank at 5.34 atm and 23˚C. What is Ne's mole fraction, **and** what is the partial pressure of the Ne?

a) Ans: ____________ ____________

b) What must the volume of the tank be? (use ideal gas law)

Ans ___________

6. A tank contains 5.86 g of Ar and 5.77 g of Ne. The partial pressure of the Ar is 237 mmHg.
a) What is Ar's mole fraction and... **b)** what is the <u>total</u> pressure of the tank?

Ans: **a)** ___________ **b)** ___________

7. A flask contains 2.34 x 10^{22} atoms of He, 0.1972 moles of CO_2, and 2.45 g of N_2. The partial pressure of the N_2 is 2.33 atm. **a)** What is N_2's mole fraction? **b)** What is the total pressure of the mixture?

Ans: **a)** ____________ **b)** ____________

<u>* Cross off answers as you find them. Circle the left over answer! *</u>

Ans(IRO+1): -71 0.163 0.270 0.339 0.379 0.837 1.34 1.92 2.00 2.02 4.00 4.38 6.00 8.63 123 632 699 776

Units(IRO+1): atm atm atm atm atm atm mmHg mmHg mmHg mmHg CO2 CH4 L g ˚C **(more on page 2)--->**

8. Two gases **A** & **B** are placed together in a container. **A**'s partial pressure is greater than **B**'s.

a) One reason one gas sample might have a higher pressure than another is because it is at a higher temperature. Why could this not be used to explain why **A** has a higher pressure than **B**?

b) One reason one gas sample might have a higher pressure than other is because it is confined to a smaller volume. Why could this not be used to explain why **A** has a higher pressure than **B**?

c) So, if it's not temperature or volume, what explanation can you offer why **A** has a higher pressure than **B**?

d) Again, regarding the sample described above, label the following as DT (definitely true), PT (possibly true), or DF (definitely false):

___ There is a greater mass of **A** present (compared to **B**) in the mixture.

___ There is a greater number of moles of **A** (compared to **B**) in the mixture.

___ There is a greater number of particles of **A** (compared to **B**) in the mixture.

___ **A** is at a higher temperature than **B** in the mixture.

___ **A**-particles are hitting the inside walls of the container harder on average than **B**-particles.

___ **A**-particles are hitting the inside walls more often on average than **B**-particles.

___ **A**-particles are more concentrated in the container than **B**-particles.

___ **A**-particles don't have as much room to move around as **B**-particles.

___ **A**-particles are heavier on average than **B**-particles.

___ **A**-particles are moving faster on average than **B**-particles.

9. Equal masses of **P** gas and **Q** gas are present in a container, yet **P** has a greater partial pressure than **Q**. Is this possible? Explain.

10. Equal number of moles of **X** gas and **Y** gas are present in a container, yet **X** has a greater partial pressure than **Y**. Is this possible? Explain.