## GRAHAM'S LAW PRACTICE (#1)

$$\frac{\text{Rate A}}{\text{Rate B}} = \frac{\sqrt{\text{molar mass B}}}{\sqrt{\text{molar mass A}}}$$

**at constant temperature**

*Directions:*
*Show all work. Remember that the first gas mentioned in the problem is A, and the second is B. Assume constant temperature for the problems below.*

1) Calculate the difference in effusion rates of hydrogen gas and oxygen gas. Does hydrogen gas effuse slower or faster than oxygen gas?

2) What is the difference in diffusion rates of nitrogen dioxide and neon? Does nitrogen dioxide gas effuse slower or faster than neon gas?

3) Compare the diffusion rates of propane ($C_3H_8$) and methane ($CH_4$) gases. Explain your answer.

4) Calculate the difference in effusion rates for carbon dioxide and radon gases. Explain your answer.

5) What is the difference in effusion rates of ozone ($O_3$) and carbon monoxide gases? Does ozone effuse slower or faster than carbon monoxide?

6) Compare the diffusion rates of helium and propane ($C_3H_8$) gases. Explain your answer.

7) CHALLENGE: A gaseous compound containing C, H, and Cl effuses 0.411 times as fast as neon. Choose the correct molecular formula of the compound from this list: $CH_3Cl$, $CH_2Cl_2$, $CHCl_3$, $C_2H_3Cl_3$

8) CHALLENGE: Bauckium gas diffuses 0.25 times as fast as He. What is the molar mass of Bauckium?