**Law of Effusion**

Name

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period

\_\_\_\_\_\_\_

Date

\_\_\_\_\_\_\_\_

1. Open the Gas Properties HTML5 simulation.

Choose for Energy.

Reset the system.

Add 100 heavy molecules to the gascontainer.

Record the temperature: \_\_\_\_\_\_\_\_\_\_ K

Record the velocity of the heavy molecules: \_\_\_\_\_\_\_\_\_\_\_\_\_ m/s

Add the Chronometer.

Stop the movement.

Slide the Horizontal Lid to make a small opening.

Start the chronometer.

Start the movement.

Stop the movement after 60 seconds.

The number of heavy gasmolecules that leave the gascontainer in 60 seconds: \_\_\_\_\_\_\_\_\_\_\_\_

2. Reset the activity and add 100 light molecules.

Record the temperature: \_\_\_\_\_\_\_\_\_\_\_\_ K

Record the velocity of the light gasmolecules: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ m/s

Count the number of light gasmolecules that leave the gascontainer in 60 seconds:

\_\_\_\_\_\_\_\_\_\_\_\_

3. Find:

a.The light-to-heavy ratio of the average velocities: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. The ratio of the rates of effusion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Do this results support the statement:

The ratio of the average velocity at which gas molecules move is the same as the ratio of the rates of effusion? \_\_\_\_\_\_\_\_\_

5. According to Graham’s Law of Effusion, the ratio of the light-to-heavy rates of effusion is the square root of the ratio of heavy-to-light molar masses.

6. Find the ratio of heavy-to-light molar masses: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. What is the nature of the heavy and light gasmolecules?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_