Use Graham’s law to:

1. Calculate the relative rates of diffusion of methane (CH**4**) and sulfur dioxide.
2. Calculate the ratio of the velocity of helium atoms to that of neon atoms at the same temperature.
3. You are at one side of a large room. Two gases, carbon dioxide, and hydrogen sulfide (H**2**S) are released at the same time from opposite sides of the room. Which gas would reach you first? How much faster would it travel? Depending on the concentration, you should exit the room!
4. A molecule of fluorine gas has an average velocity of 25.2 m/s at a given temperature and pressure. What is the average speed of helium atoms at the same conditions?
5. It takes 354 seconds for Xe to effuse through a small hole. Under the same conditions, how long will it take for nitrogen to effuse?
6. Oxygen gas and an unknown gas are released at opposite ends of a glass tube. It is determined that an unknown gas traveled at 10.8 m/s while oxygen traveled at 4.1 m/s. Identify the unknown gas.