Graham's law mathematical problem

Problem #1: If equal amounts of helium and argon are placed in a porous container and allowed to escape, which gas will escape faster and how much faster?

Problem #2: What is the molecular weight of a gas which diffuses 1/50 as fast as hydrogen?

Problem #3: Two porous containers are filled with hydrogen and neon respectively. Under identical conditions, 2/3 of the hydrogen escapes in 6 hours. How long will it take for half the neon to escape?

Problem #4: If the density of hydrogen is 0.090 g/L and its rate of effusion is 5.93 times that of chlorine, what is the density of chlorine?

Problem #5: How much faster does hydrogen escape through a porous container than sulfur dioxide?

Problem #6: Compare the rate of diffusion of carbon dioxide (CO_2) & ozone (O_3) at the same temperature

Problem #7: 2.278×10^{-4} mol of an unidentified gaseous substance effuses through a tiny hole in 95.70 s. Under identical conditions, 1.738×10^{-4} mol of argon gas takes 81.60 s to effuse. What is the molar mass of the unidentified substance?

Problem #8: A compound composed of carbon, hydrogen, and chlorine diffuses through a pinhole 0.411 times as fast as neon. Select the correct molecular formula for the compound:

(a) $CHCl_3$ (b) CH_2Cl_2 (c) $C_2H_2Cl_2$ (d) C_2H_3Cl

Problem #9: Which pair of gases contains one which effuses at twice the rate of the other in the pair?

(a) He and Ne (b) Ne and CO_2 (c) He and CH_4 (d) CO_2 and HCl
(e) CH_4 and HC

Problem #10: If a molecule of CH_4 diffuses a distance of 0.530 m from a point source, calculate the distance (in meters) that a molecule of N_2 would diffuse under the same conditions for the same period of time.

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