Consider a binary solution of A and B with the concentration of $X_A=0.20$. Assuming the Henry activity coefficient ($\gamma_A$) of A in this binary solution is given by

$$\ln \gamma_A = 0.50 X_A^2 X_B.$$  

Determine the ratio of the chemical diffusion coefficient of A to the tracer diffusion coefficient of A in the solution. (Note: chemical diffusion coefficient refers to the diffusion against the concentration gradient, and tracer diffusion coefficient also called self-diffusion coefficient)

**Answer:** covered in Lecture 5