

Physics 112 Homework 3

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Question 2.1: Effusion

Suppose we have an ideal gas of N particles, each of mass m , in a box of volume V and at temperature T . We open a circular hole of area A (radius $\ll \bar{l}$ where \bar{l} is the *mean free path*) in one of the walls and let the x -direction be the direction normal to the hole.

- (a) **Determine how many particles escape through the hole in a short time Δt .**

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