

**Problem 3.1**

Two airplanes are conducting tests to estimate the coefficient of diffusion in a stagnant atmosphere. The first airplane, flying 1-km above the earth's surface, instantaneously releases 1-kg mass of trace gas. A second airplane flies through the cloud 60 minutes later and measures a maximum concentration of 0.03 mg/l within the cloud.

Estimate the [coefficient of diffusivity](#) within this region of atmosphere.

[Hint 1](#)

[Hint 2](#)

[Hint 3](#)