**Nuclear Engineering 150 – Discussion Section**
**Team Exercises #10**

# Problem 1

Consider an infinite slab of material described by diffusion coefficient $D$ and macroscopic cross section $\Sigma_a$. The material extends infinitely in two dimensions, but has a vacuum boundaries at $x = a$ and $x = 0$. At $x = 0$ there is also a uniformly distributed source plane with strength $s''$ [neutrons per area]. Find the flux in this geometry. (You may use the substitution $L = \sqrt{\frac{D}{\Sigma_a}}$.)

## Problem 2

Consider an infinite slab of material described by diffusion coefficient $D$ and macroscopic cross section $\Sigma_a$. The material extends infinitely in two dimensions, but has vacuum boundaries at $x = \pm a$. Inside the slab is a uniformly distributed source with strength $s'''$ [neutrons per volume]. Find the flux in this geometry. (You may use the substitution $L = \sqrt{\frac{D}{\Sigma_a}}$.)