3. Find the solution to the diffusion equation for 1-group, slab geometry, where the material is a pure scatter and the slab width is X:

The one group, slab geometry diffusion equation for slab geometry is:

Has a solution of the form:

x=-X/2

x=X/2

x=0

The boundary conditions:

Marshak:

Mark:

Vacuum Dirichlet:

Reflective:

Albedo:

As long as we don’t divide by zero, the albedo boundary condition represents the reflected when

and vacuum when

Given:

The Marshak boundary at the right side becomes:

And at the left side:

Plugging in A

There is probably an easier more correct solution but:

And by symmetry:

If we assume a scattering dominate system, then D can be approximated by:

This would simplify our constant to: