# SBE II: Homework 4

## Experiment-2:

Given that we know the following:

With the boundary conditions:

We are asked to transform the differential equation into the Laplace domain. Recall that . Thus, .

In order to simplify the computation moving forward both relative length and time, will be used. Recall, from their definition, that and .

We are also able to transform our initial conditions from before so that they now exist in out Laplace domain.

Combining the above two results, we can obtain the closed form solution (solved for constants in next part):