**Discretization:**

Electric potentials in a region with no interfering electric charges obey Laplace’s equation:

Which is an elliptic-class, second order, linear, partial differential equation. Before modeling the system, the equation above must be discretized first in order to be suitable for solving numerically, which gives:

Which can also be written as:

Or:

One may select the most suitable of any of the forms above depending on the problem, but essentially, they’re all the same. Next, we get:

A little arrangement gives:

We get the same form for y and z. Next, we plug , , into Laplace Equation, we get:

And that is the equation that we implement in the code to model our system.

**Electric Field:**

The relationship between electric field and potential is described by the following equation for the numerical method: