Calculus Section 6.1 Slope Fields  
-Use initial conditions to find particular solutions of differential equations  
-Use slope fields to approximate solutions of differential equations

Homework: Slope Field Worksheet

Not all differential equations can be solved using separation of variables. These are called inseparable differential equations (you will learn how to solve these is a class called “Ordinary Differential Equations”). You can graphically represent the solution to a differential equation using a **slope field**. Slope fields use short line segments to represent the tangent lines of the solution to the differential equation at many different points. Together, the many segments give a fuller picture of what the solution would look like.

**Example)**  
Use separation of variables to find the solution to the differential equation . Then, graph the slope field for the differential equation at the points indicated on the graph.

You can see the various solutions for the general solution to based on the value of C. You can also graph a particular solution on a slope field if you are given a point that the curve passes through. Begin at the initial condition and use the slope to sketch an approximate path for the solution curve.

Sketch a slope field for the differential equation y’ = 2x + y at the indicated points. Sketch the solution that passes through (1, 1).