**Engineering Mathematics Homework 2 - Solution**

1. Solve the following differential equation by separation of variables.

Sol:

From or we obtain or

1. From we obtain or  
    . Using we find .  
   The solution of the initial-value problem is   
   or .
2. Find the general solution of the following differential equation. Give the largest interval over which the general solution is defined. Determine whether there are any transient terms in the general solution.  
   sol:  
   For an integrating factor is so that and for .
3. Solve the following initial-value problem. Use a graphing utility to graph the continuous function .