1. Consider the initial value problem \( y' = x^2 y - xy^2, \ y(2) = 3 \).
   
   (a) Evaluate \( y'(2) \).

   (b) Is the solution increasing or decreasing near \( x = 2 \)?

   (c) Evaluate \( y''(2) \).

   (d) Is the solution concave upward or concave downward near \( x = 2 \)?

   (e) Are the Euler tangent line approximations of the solution near \( x = 2 \) greater than or less than the values of the solution?

2. Find the first three nonzero terms of the Maclaurin series of the solution of the initial value problem \( y' = xy, \ y(0) = 1 \).
3. Find the first four nonzero terms of the Maclaurin series of the solution of the initial value problem $y'' - 2y' + y = 0$, $y(0) = 0$, $y'(0) = 1$.

4. Find the first four nonzero terms of the Taylor series about $c = 1$ of the solution of the initial value problem $y' = y^2$, $y(1) = 1$. 