

ODE for Physicists - Homework 12

Due: July 5, 2005

36. (4 points) Solve the IVP $(3x^2y^2 - 2y) - xy' = 0$, $y(0) = 0$.
Hint: Substitute $u(x) = x^2y(x)$.
37. (4 points) For what values of $y_0 \in \mathbb{R}$ does the IVP $xy' + 2y = 3x$, $y(0) = y_0$, have a solution, and what is this solution?
38. (4 points) Solve the IVP $xy' = (x + 1)(y^2 + y)$, $y(2) = \frac{-e^2}{1+e^2}$.
39. (4 points) Solve the IVP $(1 + e^x)yy' = e^x$, $y(1) = 1$.