

3020 DIFFERENTIAL EQUATION. HOMEWORK 1

1. Solve the following differential equations:

(i) $y'' = y'$ (Hint: reduce to $y' = y$).

(ii) $y' = \frac{x^2+1}{x+1}$

(iii) $y' = (xy)^2$

(iv) $y' = \frac{e^x y}{1+y^2}$

2. Solve the following initial-value problem: $y' = xy^2 + 2y^2$, $y(0) = 1$.