Worksheet 6

Claudiu Raicu

March 8, 2011

(1-2) Solve the following differential equations

1. $y' = \dfrac{\ln(t)}{ty}$.
2. $yy' = t\sin(t^2+1)$.

(3-6) Solve the following differential equations with the given initial conditions.

3. $y' = 5ty - 2t$, $y(0) = 1$.
4. $y' = \dfrac{t^2}{y}$, $y(0) = -5$.
5. $\dfrac{dy}{dx} = \dfrac{\ln(x)}{\sqrt{xy}}$, $y(1) = 4$.
6. $\dfrac{dN}{dt} = 2tN^2$, $N(0) = 5$.

(7-10) Solve the following differential equation/initial-value problem.

7. $6y' + ty = t$
8. $\dfrac{1}{\sqrt{t+1}}y' + y = 1$.
9. $y' = 2(10 - y)$, $y(0) = 1$.
10. $ty' - y = -1$, $y(1) = 1$, $t > 0$.