Differential Equations
(FALL 2016)
Assignment (3)

Solve the following DE's:

Find the solution of the following D.E's and solve the initial value problems:

1. $yy'' = (y')^2$
2. $xy'' - y' = 0$
3. $y'' + 2x(1+y')^2 = 0$
4. $yy'' = (y')^2 + (y')^3$
5. $y'' = 1 + (y')^2; y(0) = 0, y'(0) = 0$
6. $2xy'y'' = (y')^2 - 1$
7. $y'' = x(y')^2; y(0) = 1, y'(0) = -2$

Find an orthogonal trajectory of the given family of the curves.

1. $x^2 = ay$
2. $y = \dfrac{ax}{1+x}$
3. $2x^2 + y^2 = 4ax$
4. $e^x \cos y = a$
5. $y + x + 1 = ae^x$