CS 130 Exercises

First Order ODE - Part 2

January 25, 2013

NOTE: All of the items below were taken or derived from the book "Elementary Differential Equations (8th edition)" by Rainville, Bedient, and Bedient. The ODEs here are either linear differential or Bernoulli's equations.

1. $\frac{dy}{dx} = \csc x + y \cot x$
2. $y + 1 + (4x - y)\frac{dy}{dx} = 0$
3. Find a particular solution for $\frac{dy}{dx} = x^3 - 2xy$ with boundary conditions $x = 1, y = 1$
4. Find a particular solution for $4(3x + y - 2)\,dx - (3x + y)\,dy = 0$ with boundary conditions $x = 1, y = 0$
5. $\sin y\,(x + \sin y)\,dx + 2x^2 \cos y dy = 0$
6. $xy = (-x^2 + 3y)\frac{dy}{dx}$