

Differential Equations
Problem Set 3
Bernoulli's Differential Equations

1. Solve each equation.

(a) $\frac{dy}{dx} + y = y^2(\cos x - \sin x)$

(b) $x\frac{dy}{dx} + y = y^2 \ln x$

(c) $\frac{dx}{dy} - xy = x^2y^3, y(1) = 0$

2. The y -intercept of the tangent line to a curve at $P(x, y)$ is $2x^2y$.
Find this curve.