

Math 2420 Assignment 9/13

1) Solve the equation

$$\frac{dy}{dx} = -\frac{2y^2 + 2y + 4x^2}{2xy + x}.$$

2) Find an integrating factor of the form $x^n y^m$ (where n and m are to be determined) and solve the equation

$$\frac{dy}{dx} = \frac{6xy - 2y^2}{3xy - 4x^2}.$$

3) Solve the equation

$$\frac{dy}{dx} = \frac{\cos x \cos y}{2 \sin x \sin y}.$$

4) Solve the initial value problem

$$y'' - 4y' + 3y = 0, \quad y(0) = 1, \quad y'(0) = \frac{1}{3}.$$

5) Solve the initial value problem

$$y'' + y' = 0, \quad y(0) = 2, \quad y'(0) = 1.$$