FIRST ORDER ODE’s

Directions: Work together to solve each of the problems given below. DO NOT move on to the next problem until everyone in your group understands the solution. DO NOT make anyone feel stupid. Brownie points for having the most supportive group in class.

1. Write the first and last names of everyone in your group.
   See how many you can get without asking! Of course, ask if you can’t remember someone’s name.

2. Find an explicit solution to the initial value problem \((p^2 + 1)q' + pq = p\), \(q(1) = 3\).

3. Find an implicit solution to the ODE \((1 - xy)y' = 2x + yx^{-1}\).

4. Solve the ODE \(x \frac{dy}{dx} + 3y + 2x^2 = x^3 + 4x\).

5. Solve the IVP \((\tan y - 2) \, dx + (x \sec^2 y + 1/y) \, dy = 0\), \(y(0) = 1\).