Instructions: You must show supporting work to receive full and partial credits. No text book, notes, formula sheets allowed.

1(5pts) Find a general solution to the equation:  $2y\frac{dy}{dx} = 3x^2(y^2 + 1)$ . Solve y explicitly in x.

2(5pts) Find a general solution to the non-homogenous linear equation  $\frac{dy}{dx} + 2y = 2xe^{-2x}$ .