Math 2150 - Homework # 4
First order Separable ODEs

1. Solve each separable initial-value problem.

   Give an interval I that the solution is valid on.

   (a) $y^2 \dfrac{dy}{dx} = x + 1, \quad y(0) = 1$

   (b) $1 + \dfrac{dy}{dx} e^{3x} = 0, \quad y(0) = -5$

   (c) $\dfrac{dy}{dx} = -\dfrac{x}{y}, \quad y(4) = 3$

   (d) $\dfrac{dy}{dx} = 6y^2 x, \quad y(0) = \dfrac{1}{12}.$

   (e) $y \dfrac{dy}{dx} = 3x^2, \quad y(0) = 2.$

   (f) $xy' = 4y, \quad y(1) = 5$