Homework Assignment \# 4, Due February 3, 2016

1) Solve $y^{\prime}=\left(x^{2}+y^{2}\right) / x^{2}$.
2) Solve $y^{\prime \prime}+2 y y^{\prime}=0$.
3) Solve $y^{\prime}=-\frac{y^{2}(x+1)+y}{2 x y+1}$.
4) Solve the initial-value problem $x y^{\prime}=y+x e^{y / x}, y(1)=0$. Is your solution the only solution to this initial-value problem? Why?
5) Solve $y y^{\prime \prime}+3 y^{3}\left(y^{\prime}\right)^{3}=0, y(0)=1, y^{\prime}(0)=1$. Is your solution the only solution to this initial-value problem? Why?

From the text:
Page 115: Problem 13
Section 2.5: Odd problems 1-29

