

Math 181
Fall, 2009

Name _____

Homework #10
Due Monday, October 13
No late papers accepted! No excuses!

1. Find the equation of the curve that passes through the point (1, 3) and has a slope of $\frac{y}{x^2}$ at any point (x, y).

2. Find the general solution of the first order linear differential equation
$$xy' - 2y = x^2$$

3. A tank contains 50 gallons of a solution composed of 90% water and 10% alcohol. A second solution containing 50% water and 50% alcohol is added to the tank at a rate of 4 gallons per minute. As the second solution is being added, the tank is being drained at a rate of 5 gallons per minute. Assuming the solution in the tank is stirred constantly, how much alcohol is in the tank after 10 minutes?