Your Name: _____

Directions

 There are 30 total points possible (distributed as indicated in the questions on both sides). You may use a calculator, but not a phone or any other electronic device.

(A) (10) Find the general solution of the differential equation

$$\frac{dy}{dx} = \sec(y)\left(x^2 + \frac{1}{x^2}\right)$$

(B) (5) Your answer from part (A) should contain an arbitrary constant. For which value of that constant does the solution satisfy the initial condition $y(1) = 0$?

(C) (15) How much money do you need to deposit today in an account bearing 5% interest per year, compounded continuously, in order to have a total of $200000 after 20 years?