(1) Approximate $y(1)$ if $y' = x^2 + y^2$ and $y(0) = 1$ using Euler's method with 4 steps. Compare that approximation to that given by the improved Euler method with 2 steps, and the Runge-Kutta method using 1 step. Which is the best approximation?

(2) Solve the initial value problem $\dfrac{dy}{dx} = 3\dfrac{y}{x} - 3 \, x^5, \ \ y(2) = 56$.