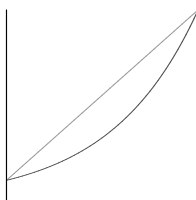


HW 3

Name \_\_\_\_\_ Section \_\_\_\_\_

1. Use Euler's Method to approximate the solution of  $y(1)$  if  $\frac{dy}{dx} = 2x + 3y$  and  $y(0) = 1$  using step size  $\Delta x = .25$ .

2. Determine the volume of the solid formed by rotating the region between the curves  $y = 3^x$  and  $y = 4x + 1$  about the  $x$ -axis.



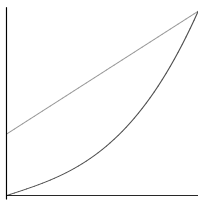
3. Determine the volume of the solid formed by rotating the region between the curves  $y = 3^x$  and  $y = 4x + 1$  about the  $y$ -axis.

4. Solve the following differential equations:

(a)  $\frac{dy}{dx} = 12 - 3y^2$  with  $y(0) = \frac{8}{5}$ .

(b)  $y'(x) + xy = 2x$  with  $y(0) = 12$

5. Determine the volume of the solid generated by rotating the region which is bounded by the  $y$ -axis and the curves  $y = 2x^3 + x$  and  $y = 2x + 1$  about the  $y$ -axis.



6. Determine the volume of the solid generated by rotating the region bounded by the  $y$ -axis and the curves  $y = \frac{6}{1+x^2}$  and  $y = 2x + 1$  about the  $y$ -axis.

