

Name \_\_\_\_\_ Student number \_\_\_\_\_ Quiz section: \_\_\_\_\_

**1 :** (5 pts) Consider the region between the parabola  $y = x^2$  and the circle  $y = \sqrt{1 - (x - 1)^2}$  (this is the circle of radius 1 centered at  $x = 1$ .) The area of this region is  $A = \frac{\pi}{4} - \frac{1}{3}$ .

a) Set up an integral for the  $x$ -coordinate of the centroid. DO NOT EVALUATE THE INTEGRAL.

b) Find the  $y$ -coordinate of the centroid.

**2 :** (5 pts) Find all solutions to the initial value problem  $y' + x e^y = 0$ ,  $y(1) = 0$ .