Math 105 91A[1] Feb. 9th, 19100 Worksheet 8

http://www.math.ubc.ca/∼ athreya/105

1. Find the area bounded by the curves $y = x$ and $y = 2x^2$.

2. We need to find the area of the region bounded by the curve $y^2 = 16x$ and the line $y = 3$ and $x = 0$. Let us try to do it two ways

   (a) First make a sketch of the graph of what $y = f(x)$ looks like and do the needful.

   (b) Second make a sketch of the graphs of what $x = g(y)$ looks like and do the needful.

   The first is called the method of vertical elements, second is called the method by horizontal elements.

3. Using the horizontal elements, find the area bounded by the curve $x = 3y - y^2$ and the line $x + y = 3$.

4. The demand function for a product p is $q = 400 - p^2$ and the supply equation is $p = \frac{q}{60} + 5$. Find producers' surplus and consumers' surplus under market equilibrium.

[1] **Office hours:** Monday:2:30-4:00pm, Tuesday:11:30-12:30 am, 3:30-4:30 pm, Wednesday: 10:30-11:30 am