

**WRITE YOUR NAME:**

MAC 2312 Homework 3

Due in class, Friday February 9th

You can use more paper if necessary, but please STAPLE

**Question 1.** Evaluate the integral.

$$\int_{\pi/12}^{\pi/9} \sec^2 3x \, dx$$

**Question 2.** Notice that the curves  $y = x^2 + 4$  and  $y = x^3$  intersect when  $x = 2$ . Let  $A$  be the region bounded by those two curves and the  $y$ -axis. Find the volume obtained by revolving the region  $A$  around the  $x$ -axis.

**Question 3.** Find the volume of the solid that results when the region enclosed by  $y = x^2$  and  $y = x^3$  is revolved around the line  $y = -1$ .