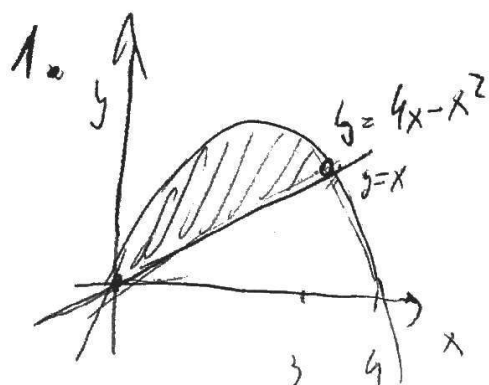


MA 16020 Quiz 6 (Lessons 11-12)

Write your name, section number (054 for 11:30, 039 for 12:30), and quiz number on the top of your quiz, **front and back**.

You may use a one-line calculator.

1. Compute the area of the region enclosed by the curves $y = 4x - x^2$ and $y = x$.
2. Compute the volume of the solid obtained by rotating the region enclosed by the curves $y = 5x^2$, $y = 0$ and $x = 4$ about the x -axis.



intersection: $4x - x^2 = x$

$$3x - x^2 = 0$$

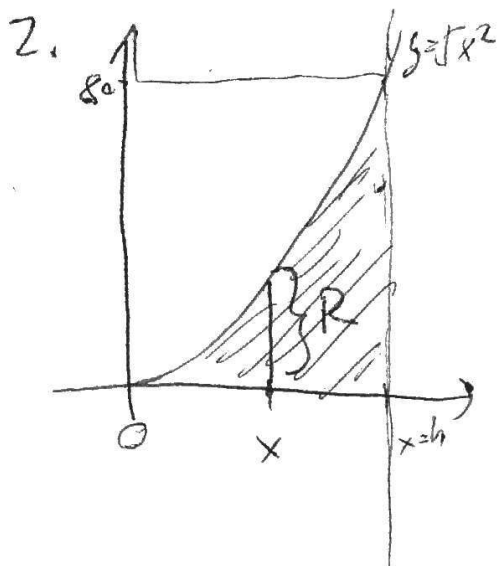
$$(3-x)x = 0$$

$$\underline{x=0}, \underline{x=3}$$

Area = $\int_0^3 ((4x - x^2) - x) dx =$

$$= \int_0^3 (3x - x^2) dx =$$

$$= \left[\frac{3}{2}x^2 - \frac{x^3}{3} \right]_0^3 = \underline{\underline{\frac{9}{2}}}$$



Volume = $\int_0^4 \pi \cdot (5x^2)^2 dx =$

$$= \int_0^4 \pi \cdot 25x^4 dx = \pi \left[5x^5 \right]_0^4 =$$

$$= 5 \cdot 4^5 \cdot \pi = \underline{\underline{5120\pi}}$$

$$R = 5x^2$$