

Mat 1322 3X – Summer 2007 – Homework #2.

To hand in Tuesday, May 29th.

Question 1. (6 points) Compute the area between the following curves:

$$\begin{aligned} (i) \quad & x = y^2 \quad x = 2 - y^2 \\ (ii) \quad & y = \cos(2x) \quad y = \sin(x) \quad x = 0 \quad x = 2\pi \end{aligned}$$

Question 2. (6 points) Compute the volume of the solid of revolution generated by rotating the given region around the given axis:

1. $2x = 4 - y^2$, $x = 0$, $y = 0$, $y = 2$ around the x -axis.
2. The same region around the axis $y = -3$.

Question 3. (3 points) Compute the volume of the solid generated by equilateral triangles standing on the edge of the region delimited by the curves $x = \sin(y)$, $y = 0$ and $y = 2x$, and perpendicular to the y -axis.

Question 4. (3 points) Compute the length of the curve $y = \frac{x^3}{6} + \frac{1}{2x}$, $1 \leq x \leq 2$.