

Homework 5

Due Monday, February 17, 2020

1. Find the volume of the solid generated by revolving the region bounded by the following function, about the axis indicated.
 - (a) (3 points) $x^2 = 4y$, $y = x/2$; about x -axis
 - (b) (3 points) $x^2 = 4y$, $y = x/2$; about y -axis
 - (c) (2 points) $y = \cos(x^2)$, $0 \leq x \leq \sqrt{\pi/2}$; about y -axis
 - (d) (2 points) $y = x^2 - 2x$, $y = 3x$; about y -axis
 - (e) (2 points) $y = \sec(x)$, $y = 0$, $0 \leq x \leq \pi/4$; about x -axis
 - (f) (2 points) $y = 3x - x^2$, $y = x^2 - 3x$; about y -axis
 - (g) (2 points) $y = 3x - x^2$, $y = x^2 - 3x$; about $x = 4$
2. (4 points) Find the volume of the solid obtained by revolving the region bounded by $y = 1 - x^2$ and $y = 2x$ about the x -axis.

Hint: Note that this region does not lie completely above or below the x -axis, so there will be some overlap (double-counting).