

Written HW5 – MATH 2502 Spring 2021

**Due by 15 February for timely completion credit**

Consider the following two solids of revolution. Sketch the region being revolved and draw its “shadow region”. Copy this picture so you now have two copies of the same picture.

In the first copy, draw appropriate disks/washers and set up **but do not evaluate** the integral for the volume using the disk/washer method. In the second copy, draw the shell and set up **but do not evaluate** the integral for volume using the shell method. Both of these pictures should include labels for relevant radii and height of the disks/washers and shells.

Describe which of the two volume computations you think would be easier to compute and explain why in your own words (*note: this is subjective!*). Finally, find the volume using the one you found to be easier.

1. The solid formed by rotating the region bounded between the curves  $y = \frac{x}{2}$  and  $y = x^2 - x$  about the  $y$ -axis.
2. The solid formed by rotating the region bounded above by the function  $y = \cos(x)$ , bounded below by the  $x$ -axis interval  $[0, \frac{\pi}{2}]$ , and bounded on the left by the  $y$ -axis rotated about the  $x$ -axis.