

# Math 1B

## Midterm 2 Area & Volume Review

Let P be the region bounded by  $y = 6x - x^2$  and  $y = x + 4$ .

Let Q be the region bounded by  $y = 2x^2$  and  $y = x^2 + 4$ .

Let R be the region bounded by  $x = 0$ ,  $y = x - 1$  and  $y = 2 - 2x$ .

Let S be the region bounded by  $x = y^2 - 1$  and  $y = x - 1$ .

Let T be the region bounded by  $y = e^x$ ,  $y = 2$  and  $x = 0$ .

Let U be the region bounded by  $y = 2 \ln x$ ,  $y = 0$ ,  $x = 0$  and  $y = 2$ .

Complete the following tables.

For maximum effectiveness, you should create all the integrals associated with one region, find them to check for correctness against the answers, fix your errors, then move on to the next region. This will help you identify patterns in how these integrals are set up.

After you have done this for all regions, you should randomly select some of the integrals you created (at least one per region and type (shell/washer)), perform the manual integration, check and correct. NOTE: Yellow boxes correspond to integrals which require advanced integration techniques.

		VOLUME OF SOLID IF REGION IS REVOLVED AROUND					
REGION	AREA	$x = -3$	$x = 5$	$y = -1$	$y = 10$		
P							
Q							
REGION	AREA	$x = 0$	$x = -2$	$x = 3$	$y = -1$	$y = 2$	$y = 3$
R							
S							
T							
U							

		VOLUME IF REGION IS BASE OF SOLID AND CROSS SECTIONS PERPENDICULAR TO X-AXIS ARE		
REGION		SQUARES	SEMICIRCLES	EQUILATERAL TRIANGLES
P				
Q				
R				
T				