## Quiz 3

## MATH 19B - Discussion Section B October 27, 2016

Name & ID # :		
<b>Directions:</b> Make sure to show all of your work for nur <b>Formulas:</b>	Make sure to show all of your work for numbers (1), (3), and (4), and box in your final answers. Not: Given a perpendicular cross section to the axis of rotation let $R(x)$ and $r(x)$ represent the outer and respectively. The volume of a rotated region bounded on $[a,b]$ is given by: $V = \pi \int_a^b \left[ (R(x))^2 - (r(x))^2 \right]  dx$ I Shells Method: Given a parallel cross section to the axis of rotation let $r(x)$ and $h(x)$ represent the height of the $shell$ respectively. The volume of a rotated region bounded on $[a,b]$ is given by: $V = 2\pi \int_a^b r(x)h(x)  dx$ ions the curves of interest are given by: $x = y^2  \text{and}  y = \begin{cases} \frac{1}{2}x, & x \leq \frac{1}{2} \\ x^2, & x > \frac{1}{2} \end{cases}$ The region contained between the curves and make sure to identify all of the boundary points.  The area of the region you sketched in (1)?  By $\frac{1}{4}$ Cy $\frac{\pi}{4}$ The integral(s), but do not evaluate, to calculate the volume generated by rotating the region in (1) are axis using the $\frac{1}{2}$ Disk Method:  The the integral(s), but do not evaluate, to calculate the volume generated by rotating the region in (1) are axis using the $\frac{1}{2}$ Disk Method:	
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$V = \pi \int_{a}^{b} \left[ (I$		
<u> </u>		. , . , .
$V=2\pi$	endicular cross section to the axis of rotation let $R(x)$ and $r(x)$ represent the outer and volume of a rotated region bounded on $[a,b]$ is given by: $V = \pi \int_a^b \left[ (R(x))^2 - (r(x))^2 \right]  \mathrm{d}x$ Given a parallel cross section to the axis of rotation let $r(x)$ and $h(x)$ represent the $ll$ respectively. The volume of a rotated region bounded on $[a,b]$ is given by: $V = 2\pi \int_a^b r(x)h(x)  \mathrm{d}x$ Finterest are given by: $x = y^2  \text{and}  y = \begin{cases} \frac{1}{2}x, & x \leq \frac{1}{2} \\ x^2, & x > \frac{1}{2} \end{cases}$ between the curves and make sure to identify all of the boundary points.	
For all questions the curves of interest are given by:		
$x = y^2$ and $y$	$y = \begin{cases} \frac{1}{2}x, & x \le \frac{1}{2} \\ x^2, & x > \frac{1}{2} \end{cases}$	
(1) Sketch the region contained between the curves and n	Make sure to show all of your work for numbers (1), (3), and (4), and box in your final answers. thod: Given a perpendicular cross section to the axis of rotation let $R(x)$ and $r(x)$ represent the outer and this respectively. The volume of a rotated region bounded on $[a,b]$ is given by: $V = \pi \int_a^b \left[ (R(x))^2 - (r(x))^2 \right] \mathrm{d}x$ and Shells Method: Given a parallel cross section to the axis of rotation let $r(x)$ and $h(x)$ represent the adheight of the shell respectively. The volume of a rotated region bounded on $[a,b]$ is given by: $V = 2\pi \int_a^b r(x)h(x)  \mathrm{d}x$ stions the curves of interest are given by: $x = y^2  \text{and}  y = \begin{cases} \frac{1}{2}x, & x \leq \frac{1}{2} \\ x^2, & x > \frac{1}{2} \end{cases}$ the region contained between the curves and make sure to identify all of the boundary points. The area of the region you sketched in (1)?  b) $\frac{1}{4}$ c) $\frac{\pi}{4}$ d) $\frac{5\pi}{16}$ for the integral(s), but do <b>not evaluate</b> , to calculate the volume generated by rotating the region in (1) he $x$ -axis using the Disk Method:	
(2) What is the area of the region you sketched in (1)? a) $\frac{5}{16}$ b) $\frac{1}{4}$	c) $\frac{\pi}{4}$	d) $\frac{5\pi}{16}$
(3) Write down the integral(s), but do <b>not evaluate</b> , to around the x-axis using the <u>Disk Method</u> :	calculate the volume	generated by rotating the region in (
(4) Write down the integral(s) but do <b>not evaluate</b> to	calculate the volume	generated by rotating the region in
around the $x$ -axis using the Cylindrical Shells Method		generated by folding the region in (