

Student: Aaron Singh
 Date: 07/17/14
 Time: _____

Instructor: Lance Burger
 Course: Math 76 Calculus 2
 Book: California State University, Fresno
 Math 75: Calculus

Assignment: Daily Quiz #1: (show work in space provided)

1. Use the shell method to find the volume of the solid generated by revolving the region bounded by the given curves about the given lines.

$y = 25 - x^2$, $y = 25$, $x = 5$; revolve about the line $y = 25$

☐ A. $\frac{4375}{3}\pi$

☐ B. $\frac{125}{3}\pi$

☐ C. $\frac{5000}{3}\pi$

☒ D. 625π

+1

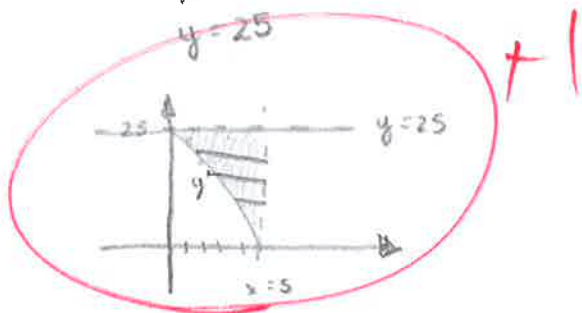
good!

$$2\pi \int_a^b r h \, dy$$

$$y = 25 - x^2 \Rightarrow y - 25 = -x^2 \Rightarrow x = \sqrt{25 - y}$$

$$x = 5$$

$$y = 25$$



$$r = 25 - y$$

$$h = 5 - \sqrt{25 - y}$$

$$2\pi \int_0^{25} (25 - y)(5 - \sqrt{25 - y}) \, dy$$

$$2\pi \int_0^{25} 125 - 5y - 25(25 - y)^{1/2} + (25 - y)^{3/2} \, dy$$

$$2\pi \left[125y - \frac{5y^2}{2} - \frac{50(25 - y)^{3/2}}{3} + \frac{2(25 - y)^{5/2}}{5} \right]_0^{25}$$

5/5

$$2\pi \left[125(25) - \frac{5(625)}{2} \right] = 2\pi \left(3125 - \frac{3125}{2} \right)$$

+3

Awesome!

$$= 2\pi \left(\frac{6250 - 3125}{2} \right)$$

$$= 2\pi \left(3125 - \frac{50(25)^{3/2}}{3} + \frac{2(25)^{5/2}}{5} \right)$$

$$= 2\pi \left(3125 - \frac{50(125)}{3} + \frac{2(125)}{5} \right)$$

$$= 2\pi \left(3125 - \frac{6250}{3} + \frac{250}{5} \right)$$

$$= 2\pi \left(\frac{46875 - 31250 + 750}{15} \right)$$