


# 7.2 Volume by Disk Method

pg. 453 #'s 1, 3, 7, 9, 16, 19, 24, 33


1)  $y = -x + 1$  about x-axis



$$V = \pi \int_0^1 (-x+1)^2 dx$$

$$V = \frac{\pi}{3}$$


3)  $y = \sqrt{x}$  (1, 4) about x-axis



$$V = \pi \int_1^4 (\sqrt{x})^2 dx$$

$$V = 7.5\pi$$


7)  $y = x^2$  about y-axis



$$V = \pi \int_0^4 (\sqrt{y})^2 dy$$

$$V = 8\pi$$

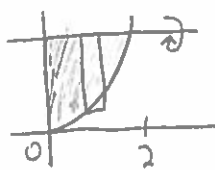
9)  $y = x^{2/3}$  about y-axis



$$V = \pi \int_0^1 (y^{3/2})^2 dy$$

$$V = \frac{\pi}{4}$$

16)  $y = \frac{1}{2}x^3$ ,  $y = 4$ ,  $x = 0$  about  $y = 4$

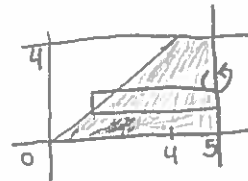


$$r = 4 - \frac{1}{2}x^3$$

$$V = \pi \int_0^2 (4 - \frac{1}{2}x^3)^2 dx$$

$$V = 20.571\pi \approx 64.627$$

19)  $y = x$ ,  $y = 0$ ,  $y = 4$ ,  $x = 5$  about  $x = 5$

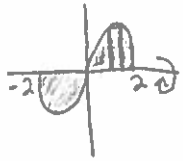


$$r = 5 - y$$

$$V = \pi \int_0^4 (5 - y)^2 dy$$

$$V = 41.3\pi$$

24)  $y = x\sqrt{4-x^2}$   $y=0$  about x-axis



$$V = 2 * \pi \int_0^2 (x\sqrt{4-x^2})^2 dx$$

$$V = 8.53\pi$$

33)  $y = \sin x$ ,  $y=0$ ,  $x=0$ ,  $x=\pi$   
about x-axis



$$V = \pi \int_0^{\pi} (\sin x)^2 dx$$

$$V = 1.571\pi$$