

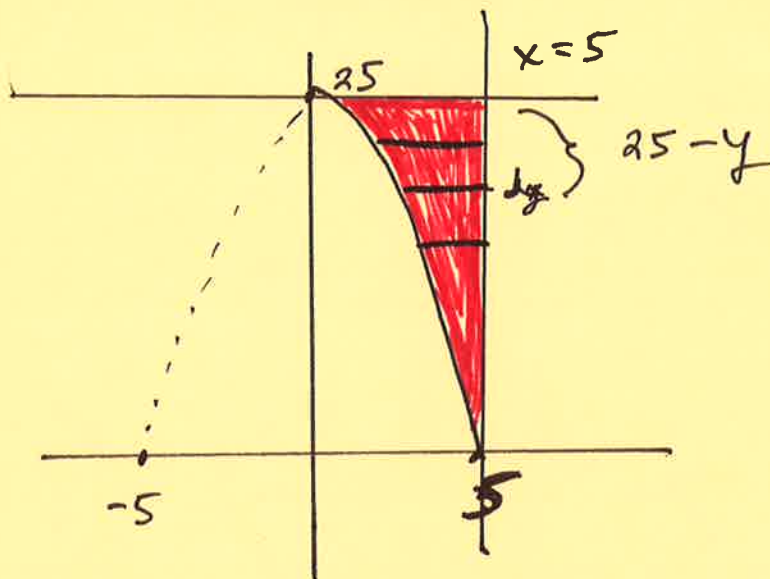
Drawing:
(1pt)

$$y = 25 - x^2$$

$$x^2 = 25 - y$$

$$x = \pm \sqrt{25 - y}$$

take positive



The integral does go from 0 to 25.

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

(3pts)

see
 Khan
 academy
 video.

$$= 2\pi \int_0^{25} 125 - 5y - 25\sqrt{25 - y} + y\sqrt{25 - y} dy$$

$$= 2\pi \left(\int_0^{25} 125 - 5y dy - 25 \int_0^{25} \sqrt{25 - y} dy + \int_0^{25} y\sqrt{25 - y} dy \right)$$

gives the following
#5:

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

gives something

like

$$\frac{3125\pi}{5} = 625\pi$$

The limit of integration does so out for $y = 0$.

1pt → Hardest one.

$$\text{let } m = 25 - y$$

$$\text{then } y = 25 - m$$

$$\text{leads to } dm = -dy$$

$$(25 - m)\sqrt{25 - (25 - m)}$$

$$(25 - m)\sqrt{m}$$

$$25m^{1/2} - m^{3/2}$$