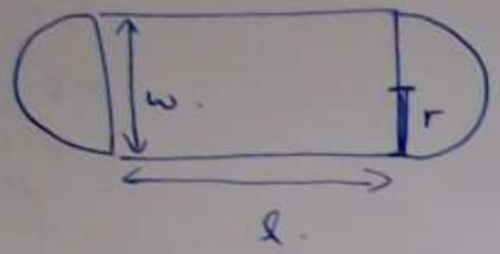
(1)

$$1600 = P = 2\ell + 2\pi r$$

$$A = \ell w + \pi r^2$$

$$A = \ell w + \pi \left(\frac{w}{2}\right)^2.$$



$2r = w$

$$1600 = 2\ell + 2\pi \frac{w}{2}$$

$$A = \ell w + \frac{\pi w^2}{4}.$$

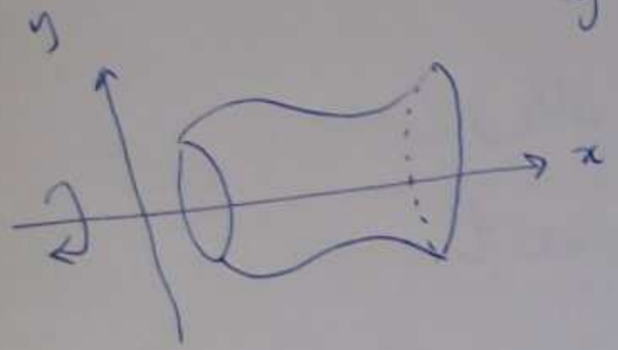
$$800 = \ell + \frac{\pi w}{2}$$

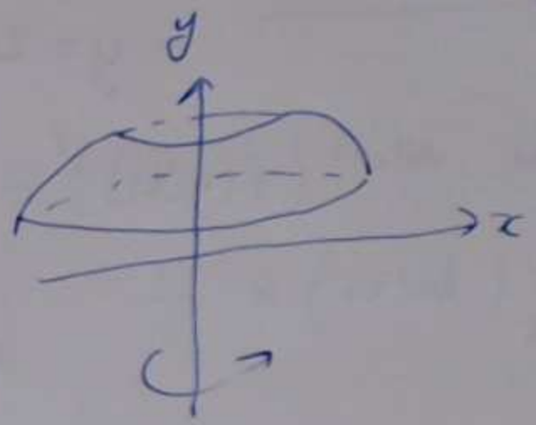
$$\ell = 800 - \frac{\pi w}{2}.$$

$$A = \left(800 - \frac{\pi w}{2}\right) w + \frac{\pi w^2}{4}.$$

(2)

$y = f(x)$.

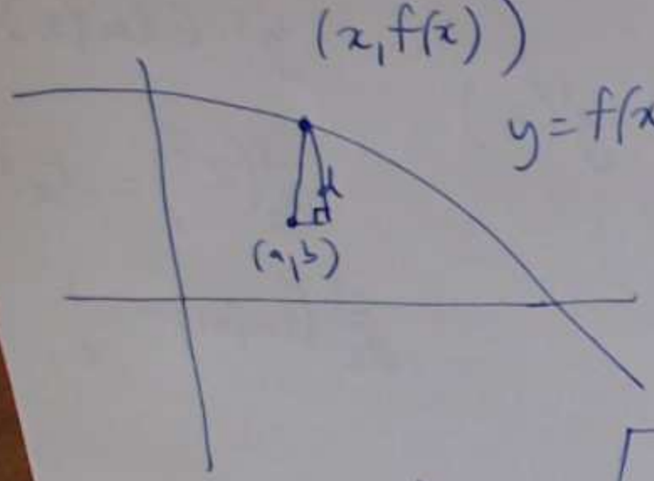




$2r = w$

$800 = \ell + \frac{\pi}{2}$

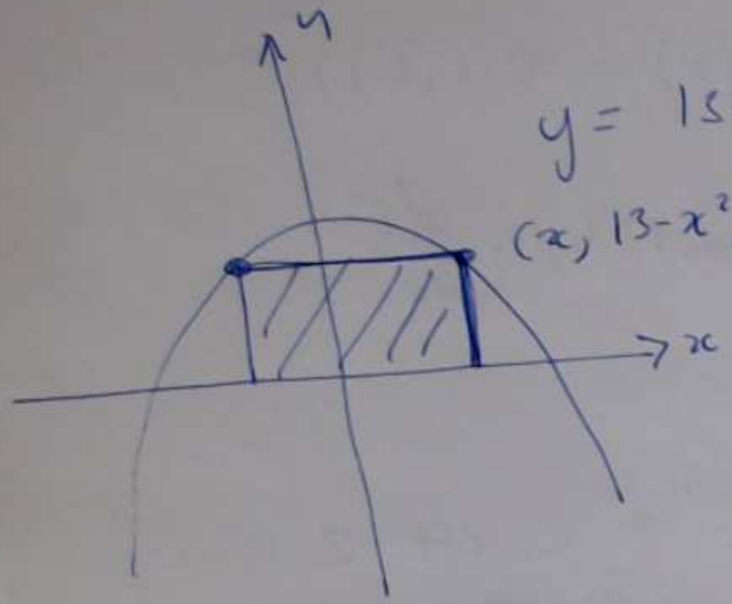
$\ell = 800 - \frac{\pi}{2}$



$$d^2 = (x-a)^2 + (f(x)-b)^2$$

$$d = \sqrt{(x-a)^2 + (f(x)-b)^2}$$

(4)



$y = 13 - x^2$

$(x, 13-x^2)$

$A = (13-x^2)\,\delta x.$