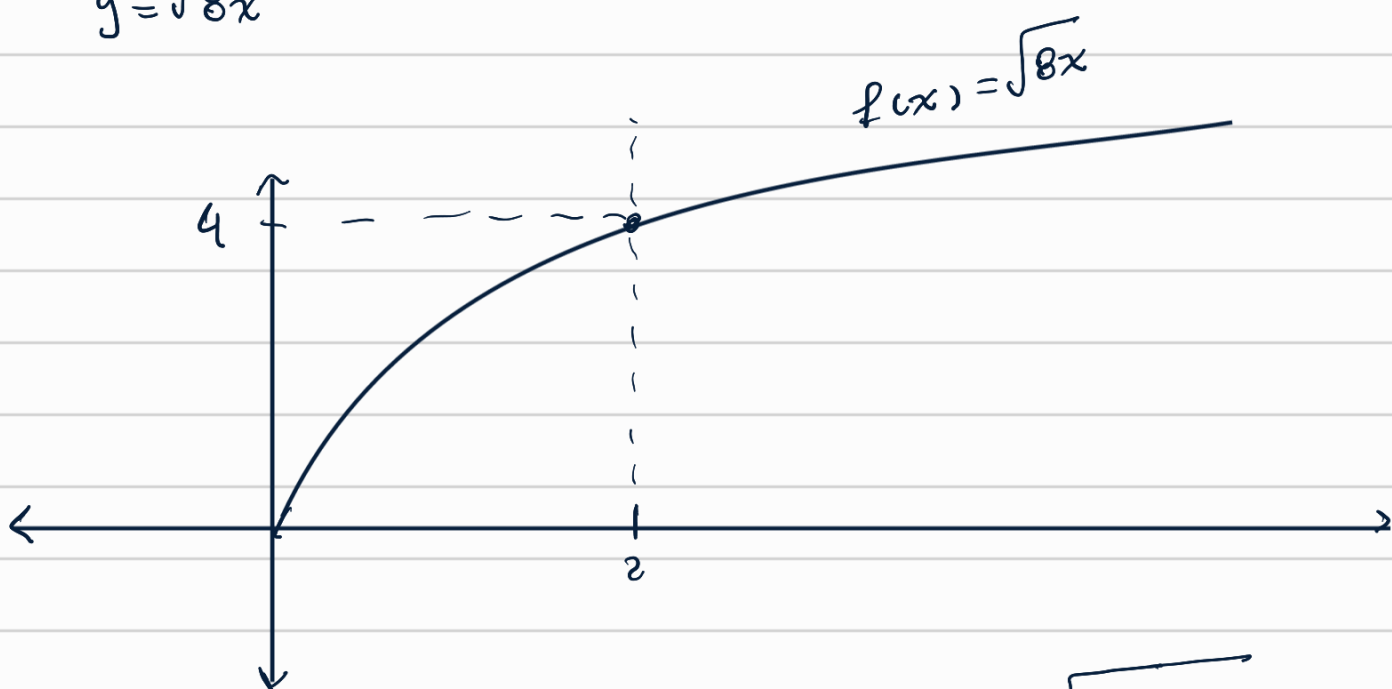


V. - b)

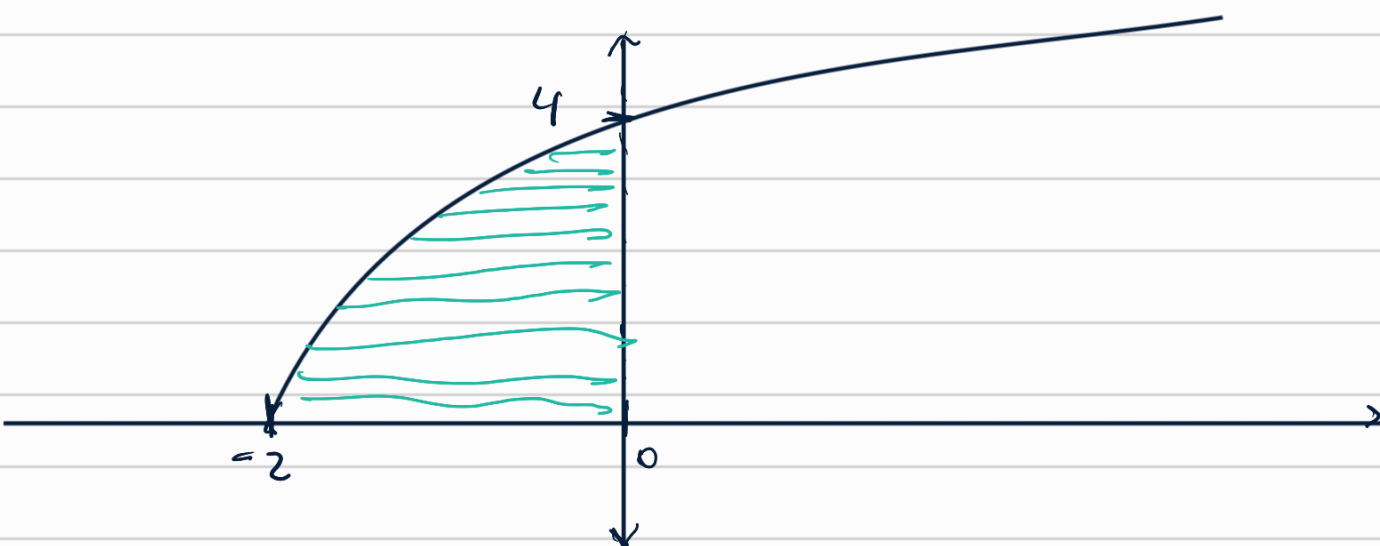
$$y^2 = 8x$$

$$x = 2$$

$$y = \sqrt{8x}$$



$$g(x) = \sqrt{8(x+2)}$$



$$y = \sqrt{8(x+2)} \Rightarrow y^2 = 8(x+2)$$

$$\frac{y^2 - 16}{8} = x = f(y)$$

$$\int_0^4 \pi (f(y))^2 dy = \int_0^4 \pi \frac{(y^2 - 16)^2}{64} dy = \frac{\pi}{64} \int_0^4 (y^4 - 32y^2 + 256) dy$$

$$= \frac{\pi}{64} \left(\frac{y^5}{5} - 32 \frac{y^3}{3} + 256y \right) \Big|_0^4$$

$$= \frac{\pi}{64} \left(\frac{1024}{5} - \frac{32 \cdot 64}{3} + 1024 \right)$$

$$= \frac{\pi}{64} \left(\frac{1024}{5} - \frac{2048}{3} + 1024 \right) = \frac{\pi}{64} \frac{8192}{15} = \frac{128\pi}{15}$$