(H) 1)

$\frac{y+4}{2} = x$

$y + 4 = 2x$

$y = 2x - 4$

$\frac{y+4}{2} = \frac{y^2}{4}$

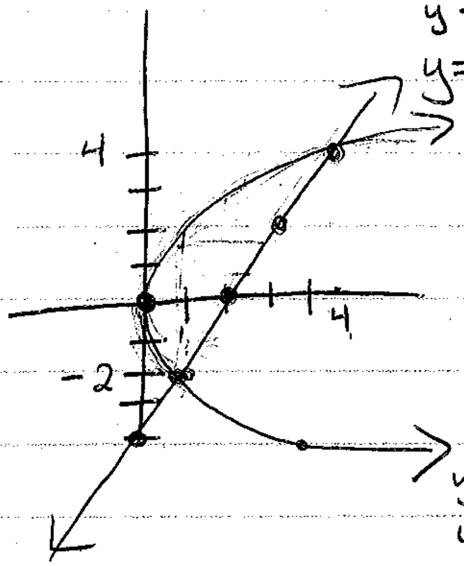
$2y^2 = 4(y+4)$

$2y^2 - 4y - 16 = 0$

$y^2 - 2y - 8 = 0$

$(y+2)(y-4) = 0$

$y = -2, 4$



$\int \text{right} - \text{left}\, dy$

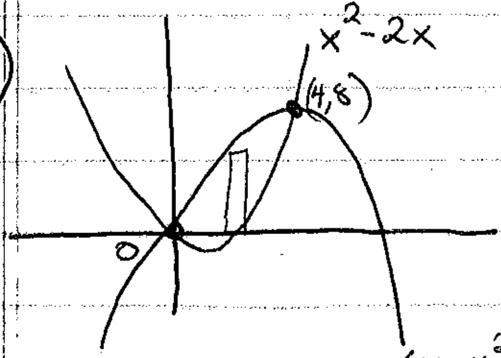
$\int_{-2}^{4} \left(\frac{y+4}{2} - \frac{y^2}{4}\right) dy$

$y^2 = 4x$

$\frac{y^2}{4} = x$

$\frac{1}{4}\int_{-2}^{4} \left(2y + 8 - y^2\right) dy = \frac{1}{4}(36) = 9$

(G) 2)



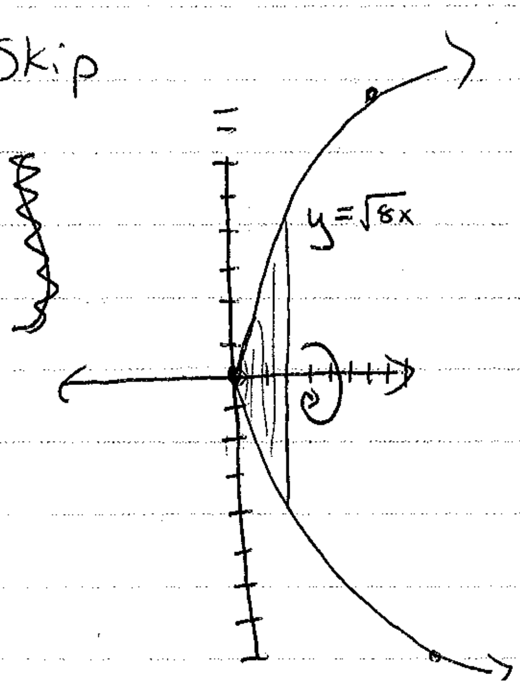
$\int \text{top} - \text{bottom}\, dx$

$\int_0^4 \left[6x - x^2 - (x^2 - 2x)\right] dx$

$\int_0^4 \left(8x - 2x^2\right) dx = 21\frac{1}{3} = \frac{64}{3}$

3) Skip

(C) 8)



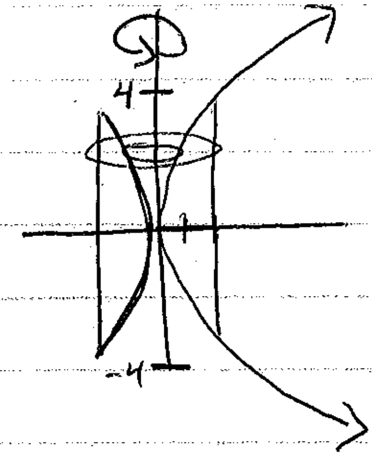
$\int_0^2 \pi \left(\sqrt{8x}\right)^2 dx$

$\pi \int_0^2 8x\, dx = 4x^2\Big]_0^2 \pi$

$= 16\pi$

W a T e R F a u C e T i N H a L i N G
3 4 7 5 8 4 6 1 9 6 2

(4) T

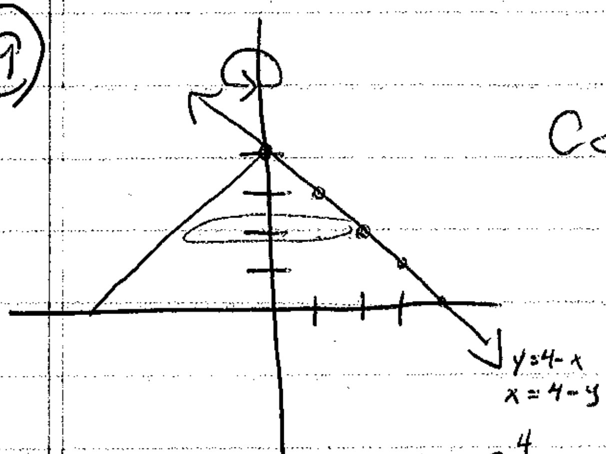


$$\pi\int_{-4}^{4} 2^2-\left(\frac{y^2}{8}\right)^2 dy$$

$$\pi\int_{-4}^{4}\left(4-\frac{y^4}{64}\right)dy = 25\tfrac{3}{5}\pi$$

$$\frac{128}{5}\pi$$

(9) L



Cone

$$\frac{1}{3}\pi r^2 h$$

$$\frac{1}{3}\pi 4^2 \cdot 4 = \frac{64}{3}\pi$$

$$\pi\int_0^4 (4-y)^2 dy = 21\tfrac{1}{3}\pi$$

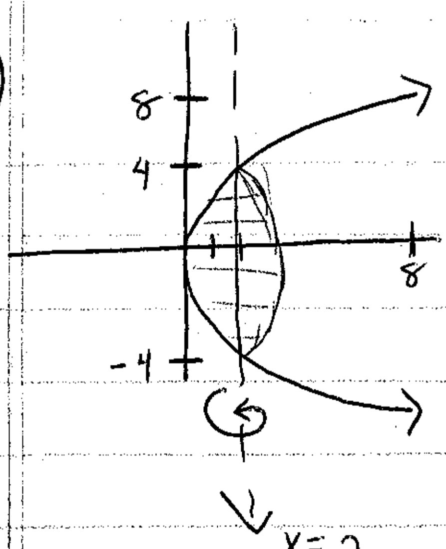
$$= \frac{64\pi}{3}$$

W (3) $\int_a^b \sqrt{1+[f'(x)]^2}\, dx$

$$\int_0^5 \sqrt{1+\left[\tfrac{3}{2}x^{+1/2}\right]^2}\, dx = \int_0^5 \sqrt{1+\tfrac{9}{4}x}\, dx$$

$$= \frac{335}{27}$$

(F) 5)



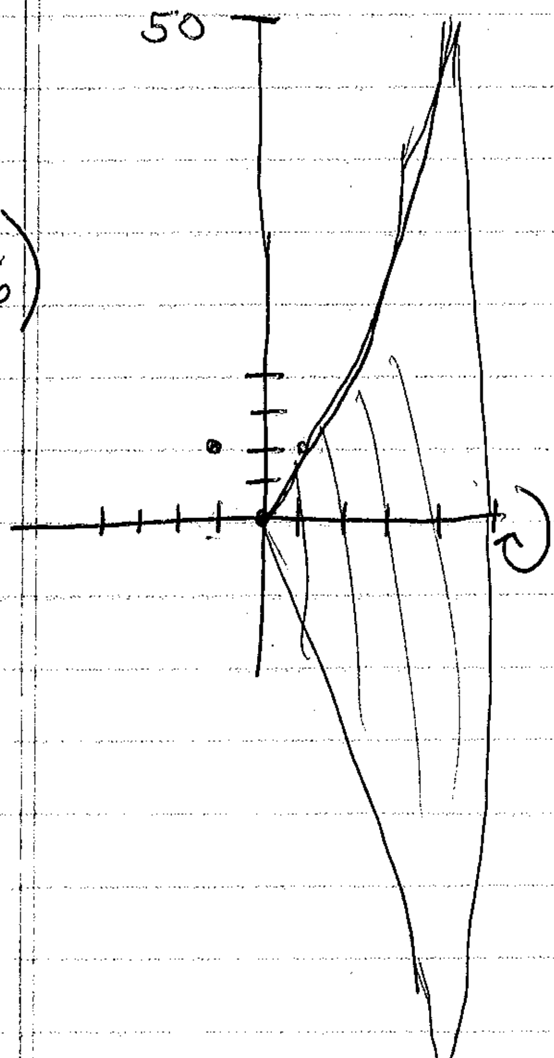
x - left

$$\pi\int_{-4}^{4}\left(2-\frac{y^2}{8}\right)^2 dy$$

$$\frac{\pi}{64}\int_{-4}^{4}\left(16-y^2\right)^2 dy$$

$$\frac{\pi}{64}\cdot\frac{16384}{15}=\frac{256}{15}\pi$$

(N) 6)



$$\pi\int_{0}^{5}\left(2x^2\right)^2 dx$$

$$\pi\int_{0}^{5}4x^4\,dx$$

$$4\pi\left[\frac{x^5}{5}\right]_0^5 = 4\pi\, 625$$

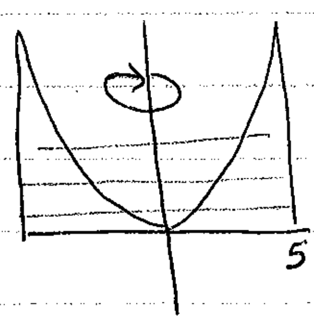
$$2500\pi$$

$x=\sqrt{\frac{y}{2}}$

$$\pi\int_0^{50}\left[\overset{5^2}{25}-\left(\sqrt{\frac{y}{2}}\right)^2\right]dy = \pi\int_0^{50}\left(25-\frac{y}{2}\right)dy$$

$$=\pi\left[25y-\frac{1}{2}\,\frac{y^2}{2}\right]_0^{50}$$

R (7)



$$\cancel{\pi\int_0^{50}\left(5-\sqrt{\frac{y}{2}}\right)^2 dy = 208\tfrac{1}{3}\pi}$$

$$\cancel{\frac{625}{3}}$$

$$=625\pi$$