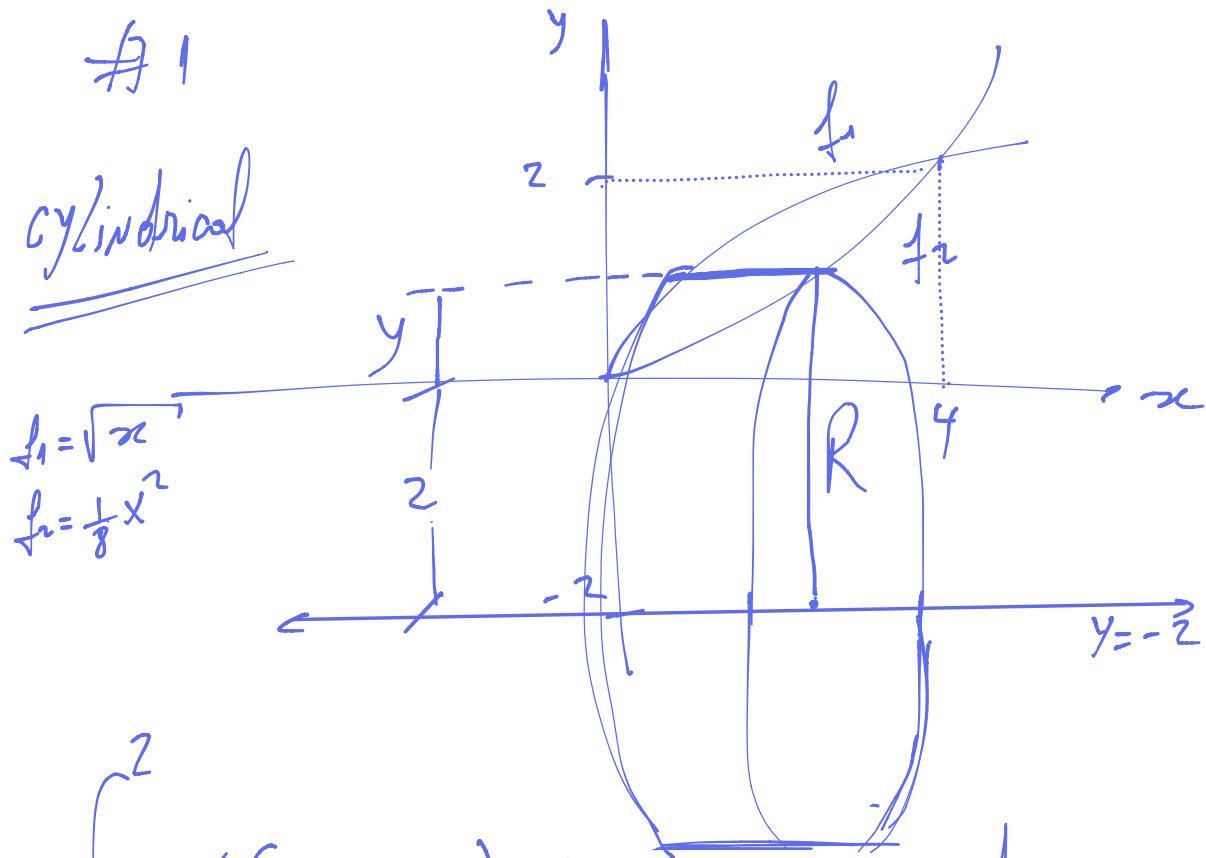


#1

cylindrical



$$\int_0^2 2\pi (z+y) (x_2 - x_1) \cdot dy$$

$$\int_0^2 2\pi (2+y) (\sqrt{8y} - y^2) \cdot dy$$

$$2\pi \int_0^2 (2\sqrt{8} \cdot y^{1/2} - 2y^2 + \sqrt{8} y^{3/2} - y^3) \cdot dy$$

$$\cancel{2\pi} \left[\frac{2\sqrt{8} y^{\frac{3}{2}}}{\frac{3}{2}} - \frac{2y^3}{3} + \frac{\sqrt{8} y^{\frac{5}{2}}}{\frac{5}{2}} - \frac{y^4}{4} \right]_0^2$$

$$2\pi \left(\frac{2 \cdot 2 \cdot 2\sqrt{2} \cdot 2\sqrt{2}}{3} - \frac{2 \cdot 2^3}{3} + \frac{2 \cdot 2\sqrt{2} \cdot 2\sqrt{2}}{5} - \frac{2^4}{4} \right)$$

$$2\pi \left(\frac{32}{3} - \frac{16}{3} + \frac{32}{5} - 4 \right)$$

$$\frac{2\pi}{3.5} \left(16 \cdot 5 + 32 \cdot 3 - 4 \cdot 3 \cdot 5 \right)$$

$$\frac{2\pi}{15} \cdot 116$$

$$\boxed{\frac{232\pi}{15}}$$