



9.

將圖形直立在對 X 軸旋轉

$$y = \sqrt{36 - x^2}$$

黃色體積

$$= \int_3^6 \pi (\sqrt{36 - x^2})^2 dx$$

$$= \pi \int_3^6 (36 - x^2) dx$$

$$= 45\pi$$

$$\text{半球體積} = \frac{1}{2} \times \frac{4}{3} \pi \times 6^3 = 144\pi$$

$$\text{流出去的水量} = 144\pi - 45\pi = 99\pi (\text{cm}^3)$$