

180-22.

$\triangle AOD \sim \triangle KM_1D$ (no 2-yu y-naw) \Rightarrow

$$\frac{AO}{AKM_1} = \frac{KM_1}{AO} = \frac{KD}{AD} = \frac{1}{6} \Rightarrow KM_1 = \frac{1}{6} AO.$$

$$\frac{OM_1}{OD} = \frac{1}{6} \Rightarrow OM_1 = \frac{1}{6} OD.$$

$$S_{\text{trapezoid}} = \frac{1}{2} AC \cdot BD \cdot \sin 2\alpha = \frac{1}{2} AC \cdot BD.$$

$$S_{\text{trapezoid}} = \frac{a+b}{2} \cdot h.$$

$$\triangle BMD, BM = KD = 1, MD = \frac{5}{3} OD$$

$\triangle BOC \sim \triangle AOD$ (no 2-yu y-naw)

$$\frac{BO}{AO} = \frac{OC}{OD}.$$

$$\cos \alpha = \frac{BO}{AO} = \frac{OC}{OD} = \frac{BO}{10} \Rightarrow \cos \alpha = \frac{BO}{10} = \frac{BO}{10}.$$

$$V = S_{\text{cylinder}} \cdot h = \pi \frac{a^2}{4} \cdot a = \frac{\pi a^3}{4}$$

$$d = 2a \Rightarrow d = a\sqrt{2} \Rightarrow R = \frac{a}{\sqrt{2}} \Rightarrow R^2 = \frac{a^2}{2}$$

$$\frac{d}{\sqrt{2}} = \frac{a}{\sqrt{2}} \Rightarrow R = \frac{a}{2\sqrt{2}} \Rightarrow R^2 = \frac{a^2}{8}$$

$$P = 2a + 2b = 48 \quad | : 2$$

$$a + b = 24$$

$$\cos 60^\circ = \frac{a}{b} \Rightarrow b = a = b \cdot \frac{1}{\cos 60^\circ} = b \cdot \sqrt{3}$$

$$b\sqrt{3} + b = 24$$

$$b = \frac{24}{\sqrt{3}+1}$$

$$R = \frac{b}{2} = \frac{12}{\sqrt{3}+1} = \frac{12(\sqrt{3}-1)}{(\sqrt{3}+1)(\sqrt{3}-1)} = \frac{12(\sqrt{3}-1)}{2} = 6(\sqrt{3}-1)$$

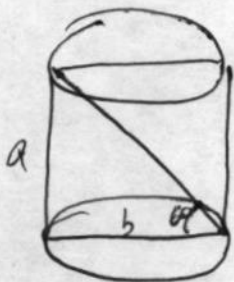
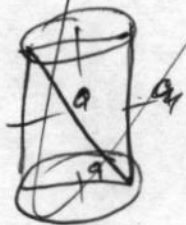
$$V_y = \pi \cdot 36 \cdot (3 - 2\sqrt{3} + 1) \cdot 12\sqrt{3}(\sqrt{3}-1) = \pi \cdot 36 \cdot 12 \cdot 2 \cdot (2-\sqrt{3}) \cdot (3-\sqrt{3})$$

$$= 864\pi(6 - 2\sqrt{3} - 3\sqrt{3} + 3) = 864\pi(9 - 5\sqrt{3}) = (7776 - 4320\sqrt{3})\pi \text{ cm}^3$$

Answer: $V = (7776 - 4320\sqrt{3})\pi \text{ cm}^3$

$\triangle MKD$ $\cos \alpha = \frac{KD}{MD} = \frac{1}{\frac{5}{3} OD} = \frac{3}{5 OD} = \frac{3}{10} \Rightarrow \cos \alpha = \frac{3}{10}$

$\triangle MKD$



$$\Rightarrow a = \frac{24 \cdot \sqrt{3} \cdot (\sqrt{3}-1)}{(\sqrt{3}+1)(\sqrt{3}-1)} = \frac{24\sqrt{3}(\sqrt{3}-1)}{2} = 12\sqrt{3}(\sqrt{3}-1)$$

$$= \frac{24\sqrt{3}(\sqrt{3}-1)}{2} = 12\sqrt{3}(\sqrt{3}-1)$$