

PRIPRAVA - TEST

1)

$$a : b : c = 9 : 10 : 17$$

$$h = 10 \text{ cm}$$

$$O = 2592 \text{ cm}^2$$

$$V = ?$$

$$V = B \cdot h$$

$$V = 5760 \text{ cm}^3$$

$$a = 9b$$

$$c = 10b$$

$$c = 17b$$

$$B = \sqrt{s(s-a)(s-b)(s-c)}$$

$$B = \sqrt{18b \cdot 9b \cdot 8b \cdot b}$$

$$B = \sqrt{1296 b^4} / \sqrt{}$$

$$B = 36 b^2 = 36 \cdot 4^2 = 36 \cdot 16 = 576 \text{ cm}^2$$

$$s = \frac{a+b+c}{2}$$

$$s = 18 b$$



$$O = 2B + P$$

$$P = a \cdot b + b \cdot c + c \cdot a$$

$$P = h(a+b+c)$$

$$P = 10 \cdot 36b$$

$$P = 360b$$

$$2592 = 2 \cdot 36b^2 + 360b$$

$$72b^2 + 360b - 2592 = 0$$

$$b_1 = 4 \quad b_2 = -9$$

2)

$$a^2 = 20 \text{ cm}^2$$

$$b^2 = 28 \text{ cm}^2$$

$$c^2 = 35 \text{ cm}^2$$

$$V = ?$$

$$V = a \cdot b \cdot c$$

$$a^2 \cdot b^2 \cdot c^2 = a^2 \cdot b^2 \cdot c^2 = (abc)^2 = V^2$$

$$V^2 = 20 \cdot 28 \cdot 35$$

$$V^2 = 19600 / \sqrt{}$$

$$V = 140 \text{ cm}^3$$

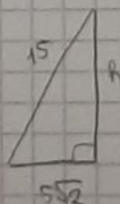
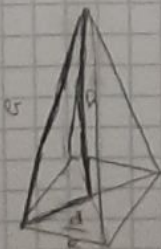
3)

$$a = 10 \text{ cm}$$

$$b = 15 \text{ cm}$$

$$V = ?$$

$$V = \frac{B \cdot h}{3}$$



$$h = \sqrt{a^2 - \left(\frac{a}{2}\right)^2}$$

$$h = \sqrt{10^2 - (5\sqrt{2})^2}$$

$$h = 5\sqrt{3} \text{ cm}$$

$$V = \frac{100 \cdot 5\sqrt{3}}{3} = \frac{500\sqrt{3}}{3} \text{ cm}^3$$

④

$$a : h = 3 : 2$$

$$P = 1500 \text{ cm}^2$$

$$V = ?$$

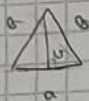
$$V = \frac{B \cdot h}{3}$$

$$a = 30 \text{ cm}$$

$$h = 20 \text{ cm}$$

$$V = \frac{30 \cdot 20}{3}$$

$$V = 600 \text{ cm}^3$$



$$a = 3h$$

$$h = 2h$$

$$P = 4 \cdot P_a$$

$$1500 = 4 \cdot P_a \quad | :4$$

$$P_a = 375$$

$$375 = \frac{a \cdot h}{2}$$

$$375 = \frac{15 \cdot h^2}{4} \quad | \cdot 4$$

$$15h^2 = 1500 \quad | :15$$

$$h^2 = 100/5$$

$$h = 10$$

$$c = \sqrt{a^2 - \left(\frac{a}{2}\right)^2}$$

$$c = \sqrt{h^2 + \left(\frac{a}{2}\right)^2} = \sqrt{4h^2 + \left(\frac{3h}{2}\right)^2}$$

$$c = \sqrt{\frac{17}{2}} h$$

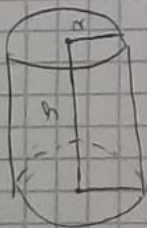
$$c = \frac{5}{2} h$$

⑤

$$h = r + 10$$

$$O = 144 \pi \text{ cm}^2$$

$$r \cdot h$$



$$h = 14$$

$$O = 2\pi r(r + h)$$

$$144\pi = 2\pi r(r + r + 10) \quad | :2$$

$$72 = r(2r + 10)$$

$$2r^2 + 10r - 72 = 0$$

$$r_1 = 4 \quad r_2 = -9$$

⑥

⑥

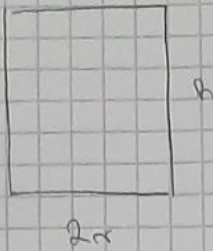
$$O_{\text{rot}} = 20 \text{ cm}$$

$$P_{\text{opt}} = 16 \text{ cm}^2$$

O, V

$$O = 2\pi r(r+h)$$

$$V = r^2 \pi \cdot h$$



$$O = 2(2r + h)$$

$$P = 2r \cdot h$$

$$2(2r + h) = 20$$

$$2r \cdot h = 16 \quad | : 2$$

$$2r + h = 10 \Rightarrow h = 10 - 2r$$

$$r \cdot h = 8$$

$$r(10 - 2r) = 8$$

$$10r - 2r^2 - 8 = 0$$

$$-2r^2 + 10r - 8 = 0$$

$$r_1 = 4$$

$$r_2 = 1$$

$$h_1 = 10 - 2 \cdot 4 = 2$$

$$h_2 = 8$$

$$O_1 = 24 \cdot \pi(4+2)$$

$$O_1 = 8\pi \cdot 6 = 48\pi \text{ cm}^2$$

$$V_1 = 4^2 \pi \cdot 2 = 32\pi \text{ cm}^3$$

$$O_2 = 2 \cdot 1 \cdot \pi(1+8)$$

$$O_2 = 2 \cdot \pi \cdot 9 = 18\pi \text{ cm}^2$$

$$V_2 = 1^2 \pi \cdot 8 = 8\pi \text{ cm}^3$$

⑦

$$\varphi = 216^\circ \Rightarrow \varphi = \frac{\pi}{5} \cdot 360^\circ$$

$$h = 20 \text{ cm}$$

$$P_{\text{best}} = ?$$

$$P = \alpha \pi s = \frac{s^2 \pi \varphi}{360^\circ}$$

$$216^\circ = \frac{\pi}{5} \cdot 360^\circ$$

$$\frac{\alpha}{3} = \frac{3}{5}$$

$$\alpha = \frac{3}{5} \pi$$

$$s^2 = r^2 + h^2$$

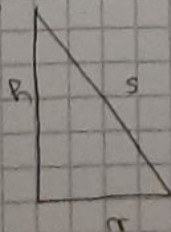
$$s^2 = \left(\frac{3}{5}s\right)^2 + 20^2$$

$$s^2 = \frac{9}{25}s^2 + 400$$

$$\frac{16}{25}s^2 = 400$$

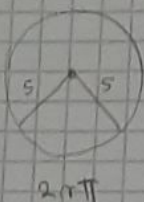
$$s^2 = 625/5$$

$$s = 25 \text{ cm}$$



$$P = \frac{25^2 \cdot \pi \cdot 216^\circ}{360^\circ} = 375\pi$$

8



$$s = 15 \text{ cm}$$

$$f = 100^\circ$$

$$O, v = ?$$

$$P = \frac{\frac{1}{2} \pi \cdot f}{360^\circ} = \frac{15^2 \cdot \pi \cdot 100}{360^\circ} = 45\pi$$

$$P = r \pi s$$

$$45\pi = r \pi \cdot 15 \quad /: 15$$

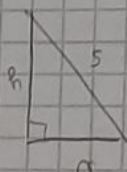
$$\boxed{r = 3}$$

$$O = r \pi (r + s)$$

$$v = \frac{r^2 \pi \cdot h}{3}$$

$$O = 100 \pi \frac{\text{cm}^2}{3}$$

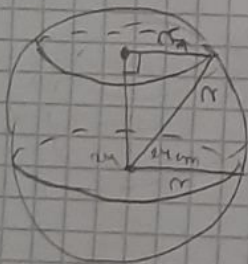
$$v = 370.24 \text{ cm}^3$$



$$h^2 = 15^2 - r^2$$

$$h = 10\sqrt{2} \text{ cm}$$

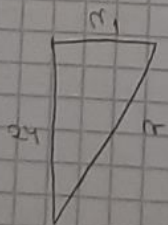
9



$$d = 24 \text{ cm}$$

$$\frac{2}{r_1} = \frac{3}{r} \quad \frac{2}{r_1} = \frac{3}{r}$$

$$r_1 = \frac{2}{3} r$$



$$r^2 = 24^2 + r_1^2$$

$$r^2 = 24^2 + \left(\frac{2}{3} r\right)^2$$

$$r^2 = 24^2 + \frac{4}{9} r^2$$

$$r^2 - \frac{4}{9} r^2 = 576$$

$$\frac{16}{9} r^2 = 576$$

$$r^2 = 900/5$$

$$\boxed{r = 30 \text{ cm}}$$