

PROSTORNINA in POVRŠINA PIRAMIDE vaje 2. d

1. Izračunaj prostornino 4-strane piramide, ki ima za osnovno ploskev pravokotnik z dolžino 12cm in širino 15cm, ter višino 20cm.
2. Izračunaj površino pravilne 4-strane piramide z osnovnim robom 12cm in stransko višino 20cm.
3. Izračunaj površino in prostornino enakorobe 4-strane piramide z robom 24dm.

Rešitve

$$1. \quad V = \frac{O \cdot v}{3}$$

$$V = \frac{12cm \cdot 15cm \cdot 20cm}{3}$$

$$V = 1200cm^3 = 1,2dm^3$$

Sam nariši skico.

$$2. \quad P = O + pl \quad O = a^2 \quad pl = 4 \cdot \frac{a \cdot v_1}{2}$$

$$O = (12 \text{ cm})^2 \quad pl = 2 a \cdot v_1$$

$$O = 144 \text{ cm}^2 \quad pl = 2 \cdot 12cm \cdot 20cm$$

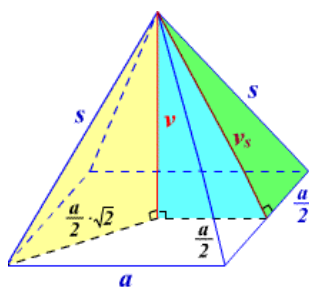
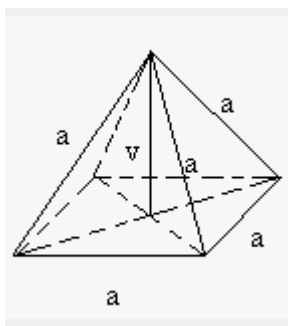
$$Pl = 480 \text{ cm}^2$$

$$P = 144cm^2 + 480cm^2$$

$$P = 624 \text{ cm}^2 = 6,24 \text{ dm}^2$$

Dodaj skico.

3. Skica



..... v_s označimo mi z v_1

$$P = O + pl$$

$$V = \frac{O \cdot v}{3}$$

$$O = a^2$$

$$pl = 4 \cdot \frac{a^2 \cdot \sqrt{3}}{4}$$

$$O = (24 \text{ cm})^2$$

$$O = 576 \text{ cm}^2$$

$$pI = a^2 \cdot \sqrt{3}$$

$$pI = 576 \cdot \sqrt{3} \text{ cm}^2$$

$$P = 576 \text{ cm}^2 + 576 \cdot \sqrt{3} \text{ dm}^2$$

$$P = 576 (1 + \sqrt{3}) \text{ dm}^2$$

$$\underline{P = 5,76 (1 + \sqrt{3}) \text{ m}^2}$$

Pitagorov izrek

$$v^2 = v_1^2 - \left(\frac{a}{2}\right)^2$$

$$v^2 = \left(\frac{a\sqrt{3}}{2}\right)^2 - \left(\frac{a}{2}\right)^2$$

$$v^2 = \left(\frac{24 \text{ dm} \cdot \sqrt{3}}{2}\right)^2 - \left(\frac{24 \text{ dm}}{2}\right)^2$$

$$v^2 = (12 \cdot \sqrt{3})^2 - 12^2$$

$$v^2 = 144 \cdot 3 - 144$$

$$v^2 = 144 \cdot 2$$

$$v = \sqrt{144 \cdot 2}$$

$$v = 12 \cdot \sqrt{2} \text{ dm}$$

$$V = \frac{576 \text{ dm}^2 \cdot 12 \cdot \sqrt{2} \text{ dm}}{3}$$

$$V = 2304 \cdot \sqrt{2} \text{ dm}^3$$

$$\underline{V = 2,304 \cdot \sqrt{2} \text{ m}^3}$$