

PL 7 - řešení'

1)  $v = 3,75 \text{ cm}, V = 320 \text{ cm}^3, a = ? [\text{cm}]$

$$V = \frac{1}{3} S_p \cdot v$$

$$320 = \frac{S_p \cdot 3,75}{3}$$

$$S_p = \frac{3 \cdot 320}{3,75}$$

$$S_p = 256 \text{ cm}^2$$

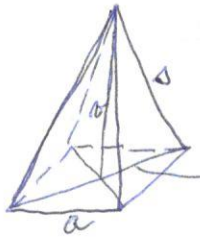
$$S_p = a^2$$

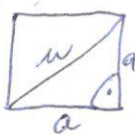
$$a = \sqrt{S_p}$$

$$a = \sqrt{256}$$

$$a = 16 \text{ cm}$$

Délka podsterní strany tohoto jehlanu je 16 cm.

2)  $u = 4 \text{ cm}, v = 5 \text{ cm}, s = ? [\text{cm}], a = ? [\text{cm}]$



$$u^2 = a^2 + a^2$$

$$4^2 = 2a^2$$

$$a^2 = 16 : 2$$

$$a^2 = 8$$

$$a = 2,8 \text{ cm}$$



$$s^2 = v^2 + \left(\frac{a}{2}\right)^2$$

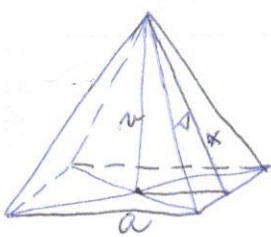
$$s^2 = 5^2 + 2^2$$

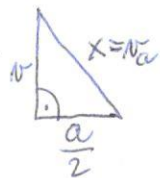
$$s = \sqrt{25 + 4}$$

$$s = \sqrt{29}$$

$$s = 5,4 \text{ cm}$$

Boční hrana měří cca 5,4 cm, podsterní hrana 2,8 cm.

3)  $a = 35 \text{ m}, v = 20,6 \text{ m}, s = ? [\text{m}], S_{pl} = ? [\text{m}^2]$



$$x^2 = v^2 + \left(\frac{a}{2}\right)^2$$

$$x^2 = 20,6^2 + 17,5^2$$

$$x = \sqrt{424,36 + 306,25}$$

$$x = \sqrt{730,61}$$

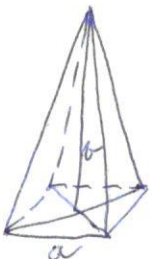
$$x = 27 \text{ m}$$

$$S_{pl} = \frac{1}{2} \cdot a \cdot v$$

$$S_{pl} = \frac{1}{2} \cdot 35 \cdot 27$$

$$S_{pl} = 472,5 \text{ m}^2$$

Výška boční stěny je cca 27 m, povrch pláště 472,5 m².

4)  $a = 85 \text{ m}, V = 626160 \text{ m}^3, v = ? [\text{m}]$

$$V = \frac{1}{3} S_p \cdot v$$

$$626160 = \frac{a^2 \cdot v}{3}$$

$$v = \frac{3 \cdot 626160}{85^2}$$

$$v = \frac{1878480}{7225}$$

$$v = 260 \text{ m}$$

Výška mrakodrapu je cca 260 m.