

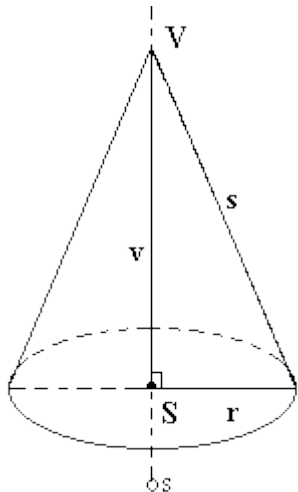
## REŠITVE NALOG O STOŽCU

(9. teden)

### Naloga 67a

$$s = 12 \text{ cm}$$

$$r = 4 \text{ cm}$$



Zapišem Pitagorov izrek za višino.

$$v^2 = s^2 - r^2 = 144 - 16 = 128$$

$$v = \sqrt{128} \approx 11,3 \text{ cm}$$

Izračunam še ploščino trikotnika.

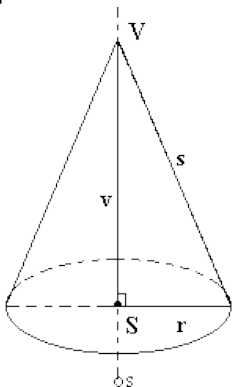
$$p = r \cdot v = 4 \cdot 11,3 = 45,2 \text{ cm}^2$$

### Naloga 71a

$$r = 6 \text{ cm}$$

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

$$pl = ?$$



$$pl = \pi \cdot r \cdot s = \pi \cdot 6 \cdot 15 = 90\pi \text{ cm}^2$$

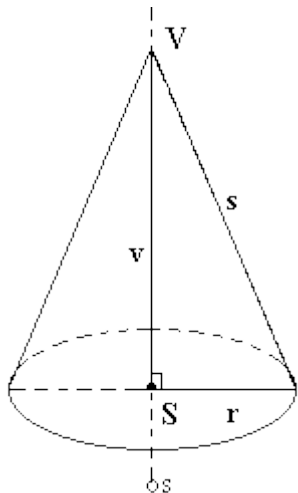
### Naloga 72a

$$v = 35 \text{ cm}$$

$$r = 12 \text{ cm}$$

$$pl = ?$$

$$P = ?$$



Po Pitagorovem izreku izračunam dolžino stranice  $s$ .

$$s^2 = v^2 + r^2 = 35^2 + 12^2 = 1225 + 144 = 1369$$

$$s = \sqrt{1369} = 37 \text{ cm}$$

Zapišem enačbo za plašč stožca, vstavim podatke in izračunam.

$$pl = \pi \cdot r \cdot s = \pi \cdot 12 \cdot 37 = 444\pi \text{ cm}^2$$

Zapišem enačbo za površino, vstavim podatke in izračunam.

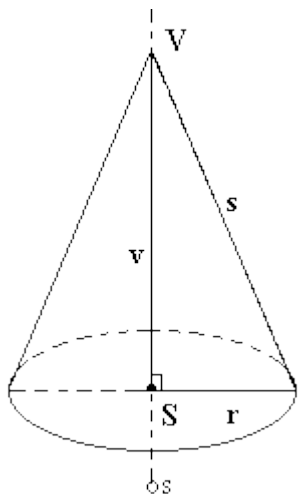
$$P = O + pl = \pi \cdot r^2 + pl = 144\pi + 444\pi = 588\pi \text{ cm}^2$$

### Naloga 77

$$\alpha = 120^\circ$$

$$l = 16\pi \text{ cm}^2$$

$$P = ?$$



Iz dolžine loka izračunam polmer osnovne ploskve.

$$l = 2\pi r$$

$$r = 16\pi : 2\pi = 8 \text{ cm}$$

$$l = \frac{\pi \cdot s \cdot \alpha}{180^\circ}$$

$$s = \frac{l \cdot 180^\circ}{\pi \cdot \alpha} = 24 \text{ cm}$$

Izračunam površino.

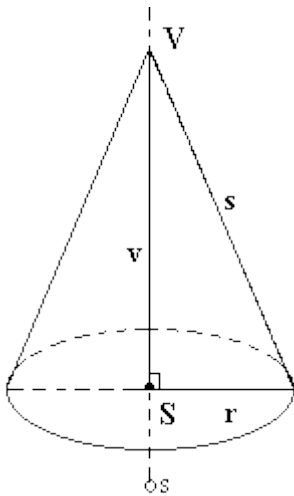
$$P = \pi r(r + s) = \pi 8(8 + 24) = 256\pi \text{ cm}^2$$

### Naloga 78

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

$$O = 6,25\pi \text{ cm}^2$$

$$P = ?$$



$$O = \pi \cdot r^2$$

$$6,25\pi = \pi \cdot r^2 /: \pi$$

$$r = \sqrt{6,25} = 2,5 \text{ cm}$$

Ploščina enakokrakega trikotnika:

$$p = r \cdot v$$

$$20 = 2,5 \cdot v$$

$$v = 20 : 2,5 = 8 \text{ cm}$$

Po P.I. izračunam s.

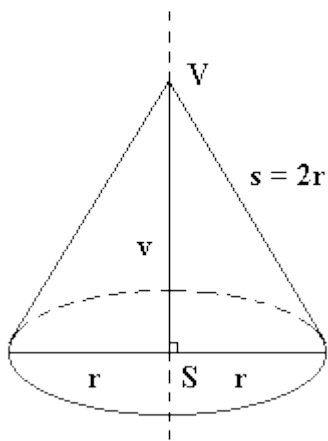
$$s^2 = v^2 + r^2 = 8^2 + 2,5^2 = 70,25$$

$$s = \sqrt{70,25} \approx 8,4 \text{ cm}$$

Izračunam površino.

$$P = \pi r(r + s) = \pi 2,5(2,5 + 8,4) = 27,25\pi \text{ cm}^2$$

### Naloga 79a



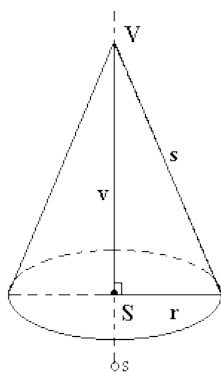
$$P = \pi r(r + 2r) = \pi r \cdot 3r = 3\pi r^2 = 3\pi \cdot 9,5^2 = 270,75\pi \text{ dm}^2$$

### Naloga 85a

$$r = 6 \text{ cm}$$

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

$$V = ?$$



Zapišem Pitagorov izrek za izračun višine stožca.

$$v^2 = s^2 - r^2 = 225 - 36 = 189$$

$$v = \sqrt{189} \approx 13,7 \text{ cm}$$

Izračunam prostornino

$$V = \frac{O \cdot v}{3} = \frac{\pi \cdot r^2 \cdot v}{3} = \frac{\pi \cdot 36 \cdot 13,7}{3} = 164,4\pi \text{ cm}^3$$

### Naloga 87b

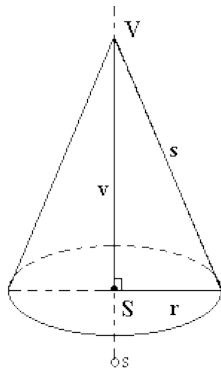
$$d = 18 \text{ cm} \rightarrow r = 9 \text{ cm}$$

$$s = 41 \text{ cm}$$

$$v = ?$$

$$P = ?$$

$$V = ?$$



Zapišem P.I. in izračunam višino.

$$v^2 = s^2 - r^2 = 41^2 - 9^2 = 1600$$

$$v = \sqrt{1600} = 40 \text{ cm}$$

Izračunam prostornino.

$$V = \frac{O \cdot v}{3} = \frac{\pi \cdot r^2 \cdot v}{3} = \frac{\pi \cdot 81 \cdot 40}{3} = 1080 \text{ cm}^3$$

Izračunam površino.

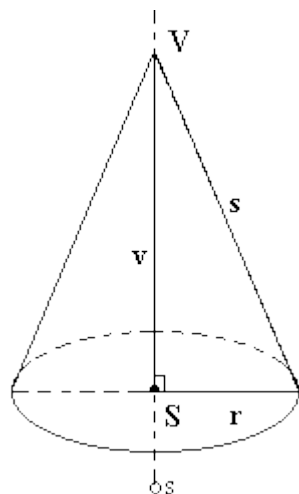
$$P = \pi \cdot r(r + s) = \pi \cdot 9 \cdot 50 = 450\pi \text{ cm}^2$$

### Naloga 88

$$pl = 46,64 \text{ cm}^2$$

$$s = 5,3 \text{ cm}$$

$$V = ?$$



Zapišem enačbo za plašč stožca. Iz enačbe izrazim polmer in ga izračunam.

$$pl = \pi \cdot r \cdot s$$

$$r = \frac{pl}{\pi \cdot s} = \frac{46,64}{3,14 \cdot 5,3} \approx 2,8 \text{ cm}$$

Zapišem P.I. za višino in jo izračunam.

$$v^2 = s^2 - r^2 = 20,25$$

$$v = \sqrt{20,25} = 4,5 \text{ cm}$$

Zapišem enačbo za prostornino, vstavim podatke in jo izračunam.

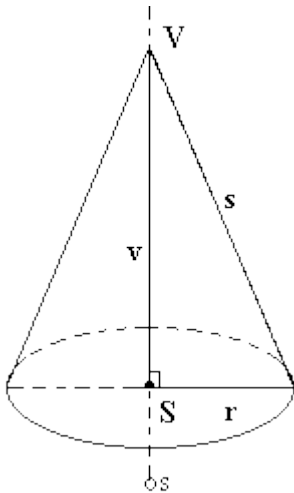
$$V = \frac{O \cdot v}{3} = \frac{\pi \cdot r^2 \cdot v}{3} = \frac{\pi \cdot 2,8^2 \cdot 4,5}{3} = 11,76\pi \text{ cm}^3$$

### Naloga 90

$$pl = 10\pi \text{ cm}^2$$

$$O = 5\pi \text{ cm}^2$$

$$V = ?$$



Iz enačbe za osnovno ploskev izračunamo polmer.

$$O = \pi r^2$$

$$r = \sqrt{5} \approx 2,24 \text{ cm}$$

Iz enačbe plašč izračunamo dolžino stranskega roba.

$$pl = \pi \cdot r \cdot s$$

$$10\pi = \pi \cdot 2,24 \cdot s$$

$$s = 10 : 2,24 \approx 4,46 \text{ cm}$$

Po P.I. izračunam dolžino višine.

$$v^2 = s^2 - r^2 = 14,874$$

$$v \approx 3,86 \text{ cm}$$

Izračunam prostornino.

$$V = \frac{O \cdot v}{3} = \frac{\pi \cdot r^2 \cdot v}{3} \approx 6,46\pi \text{ cm}^3$$

**Naloga 99**

$$V = 0,15 \text{ l} = 0,15 \text{ dm}^3 = 150 \text{ cm}^3$$

$$r = 2,5 \text{ cm}$$

$$v = ?$$

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

$$150 = \frac{\pi \cdot 6,25 \cdot v}{3} / \cdot 3$$

$$450 = 19,625 \cdot v$$

$$v = 450 : 19,625 \approx 22,9 \text{ cm}$$

**Naloga 101**

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

$$V = 0,3 \text{ l} = 300 \text{ cm}^3$$

$$d = ?$$

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

$$300 = \frac{\pi \cdot r^2 \cdot 20}{3} / \cdot 3$$

$$900 = \pi \cdot r^2 \cdot 20$$

$$r^2 = \frac{900}{20\pi}$$

$$r \approx 3,8 \text{ cm}$$