

Računanje polmera iz ploščine

č. str. 170 in 171

8)

	Polmer	Premur	Obeg	Ploščina
a)	8 cm	16 cm	50,24 cm	200,96 cm ²
b)	12 m	24 m	75,36 m	452,16 m ²
c)	7,5 mm	15 mm	47,1 mm	176,625 mm ²
č)	20 dm	40 dm	125,6 dm	1256 dm ²

a) $r = 8 \text{ cm}$
 $2r, \sigma, \nu = ?$

$\Rightarrow 2r = 16 \text{ cm}$

$\sigma = \pi \cdot 2r$
 $\sigma = 3,14 \cdot 16$
 $\sigma = 50,24 \text{ cm}$

$\nu = \pi r^2$
 $\nu = 3,14 \cdot 8^2$
 $\nu = 200,96 \text{ cm}^2$

b) $\sigma = 75,36 \text{ m}$
 $r, 2r, \nu = ?$

$\sigma = 2r \cdot \pi$
 $2r = \sigma : \pi$
 $2r = 75,36 : 3,14$
 $2r = 24 \text{ m}$
 $r = 12 \text{ m}$

$\nu = \pi r^2$
 $\nu = \pi \cdot 12^2$
 $\nu = 3,14 \cdot 144$
 $\nu = 452,16 \text{ m}^2$

c) $2r = 15 \text{ mm}$
 $r, \sigma, \nu = ?$

$\Rightarrow \sigma = 75 \text{ mm}$

$\sigma = 2r \cdot \pi$
 $\sigma = 15 \cdot 3,14$
 $\sigma = 47,1 \text{ mm}$

$\nu = \pi r^2$
 $\nu = 3,14 \cdot 7,5^2$
 $\nu = 3,14 \cdot 56,25$
 $\nu = 176,625 \text{ mm}^2$

č) $\nu = 1256 \text{ dm}^2$
 $r, 2r, \sigma = ?$

$\nu = \pi r^2$
 $1256 = 3,14 \cdot r^2$
 $r^2 = \frac{1256}{3,14}$
 $r^2 = 400$
 $r = 20 \text{ dm}$

$2r = 40 \text{ dm}$

$\sigma = 2r \cdot \pi$
 $\sigma = 40 \cdot 3,14$
 $\sigma = 125,6 \text{ dm}$

10) a) $\sigma = 18,84 \text{ cm}$
 $\nu = ?$

$$\sigma = 2r \cdot \pi$$

$$2r = \sigma : \pi$$

$$2r = 18,84 : 3,14$$

$$2r = 6$$

$$\underline{\underline{r = 3 \text{ cm}}}$$

$$\nu = \pi r^2$$

$$\nu = 3,14 \cdot 3^2$$

$$\underline{\underline{\nu = 28,26 \text{ cm}^2}}$$

b) $\sigma = 32\pi \text{ cm}$
 $\nu = ?$

$$\sigma = 2r \cdot \pi$$

$$2r = \sigma : \pi$$

$$2r = 32\pi : \pi$$

$$2r = 32$$

$$\underline{\underline{r = 16 \text{ cm}}}$$

$$\nu = \pi r^2$$

$$\nu = \pi \cdot 16^2$$

$$\underline{\underline{\nu = 256\pi \text{ cm}^2}}$$

c) $\sigma = 22 \text{ cm}$
 $\nu = ?$

$$\sigma = 2r \cdot \pi$$

$$2r = \sigma : \pi$$

$$2r = 22 : \frac{22}{7}$$

$$2r = \frac{22 \cdot 7}{22}$$

$$2r = 7$$

$$\underline{\underline{r = 3,5 \text{ cm}}}$$

$$\nu = \pi r^2$$

$$\nu = \frac{22}{7} \cdot 3,5^2$$

$$\underline{\underline{\nu = 38,5 \text{ cm}^2}}$$

13) $\nu = 18 \text{ cm}^2$
 $\sigma = ?$

$$\nu = \pi r^2$$

$$r^2 = \nu : \pi$$

$$r^2 = 18 : 3,14$$

$$r^2 = 5,73$$

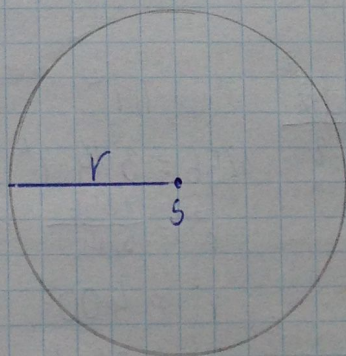
$$r = 2,39$$

$$\underline{\underline{r \doteq 2,4 \text{ cm}}}$$

$$\sigma = 2 \cdot \pi \cdot r$$

$$\sigma = 2 \cdot 3,14 \cdot 2,4$$

$$\underline{\underline{\sigma \doteq 15,07 \text{ cm}}}$$



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$$p = 49,6 \text{ cm}^2$$

$$r_1 = 150\% \text{ od } r$$

$$p_1 = ?$$

$$\frac{p_1}{p} = ? \%$$

→

$$p = \pi r^2$$

$$r^2 = p : \pi$$

$$r^2 = 49,6 : \pi$$

$$r^2 \doteq 15,488$$

$$r \doteq \underline{\underline{3,97 \text{ cm}}}$$

$$r_1 = 1,5 \cdot r$$

$$r_1 = \underline{\underline{5,96 \text{ cm}}}$$

$$p_1 = \pi r_1^2$$

$$p_1 = \pi \cdot 5,96^2$$

$$p_1 = \underline{\underline{111,6 \text{ cm}^2}}$$

$$\frac{111,6}{49,6} = 2,25 = \underline{\underline{225\%}}$$

Ploščina se poveča za 125%.

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$$r_1 = n \cdot r \quad (n \in \mathbb{N})$$

$$p_1 = ? \cdot p$$

$$p_1 = \pi r_1^2$$

$$p_1 = \pi \cdot (n \cdot r)^2$$

$$p_1 = \pi \cdot n^2 \cdot r^2$$

$$p_1 = n^2 \cdot (\pi \cdot r^2)$$

$$p_1 = \underline{\underline{n^2 \cdot p}}$$

Če polmer povečamo

n -krat, se ploščina poveča n^2 -krat.