

MATEMATIKA
II RAZRED (70 sati)

I. KVADRATNE JEDNADŽBE

① $\frac{3}{5}x^2 + \frac{5}{3} = 0$

② $9x^2 - 4 = 0$

③ $2x^2 - x - 6 = 0$

II. KVADRATNE EKSPONENCIJALNE JEDNADŽBE

① $2^{3+x} = 16$

② $\left(\frac{2}{3}\right)^{x-2} = \frac{9}{4}$

III. TRIGONOMETRIJA PRAVOKUTNOG TROKUTA

① U pravokutnom Δ je zadano

$a = 16$

$c = 22,8 \text{ cm}$

$b, \alpha, \beta = ?$

② U pravokutnom Δ je zadano

$\alpha = 50^\circ 30' 10''$

$b = 12 \text{ cm}$

$\beta, a, c = ?$

IV. Kocka, kvadar, valjak, kugla
oplošje i volumen

B PROGRAM

1. KVADRATNE JEDNAČBE

①. $\frac{3}{5}x^2 + \frac{5}{3} = 0 \quad | \cdot 15$

$9x^2 + 25 = 0$

$9x^2 = -25 \quad | :9$

$x^2 = -\frac{25}{9} \quad | \sqrt{\quad}$

$x_{1,2} = \pm \sqrt{-\frac{25}{9}}$

$x_1 = \frac{5}{3}i$

$x_2 = -\frac{5}{3}i$

②. $9x^2 - 4 = 0$

$9x^2 = 4 \quad | :9$

$x^2 = \frac{4}{9} \quad | \sqrt{\quad}$

$x_{1,2} = \pm \sqrt{\frac{4}{9}}$

$x_1 = \frac{2}{3}$

$x_2 = -\frac{2}{3}$

③. $2x^2 - x - 6 = 0$

$a = 2$

$b = -1$

$c = -6$

$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$= \frac{1 \pm \sqrt{(-1)^2 - 4 \cdot 2 \cdot (-6)}}{2 \cdot 2}$

$= \frac{1 \pm \sqrt{1 + 48}}{4}$

$= \frac{1 \pm \sqrt{49}}{4} = \frac{1 \pm 7}{4}$

$x_1 = \frac{1+7}{4} = \frac{8}{4}$

$x_2 = \frac{1-7}{4} = \frac{-6}{4}$

$x_1 = 2$

$x_2 = -\frac{3}{2}$

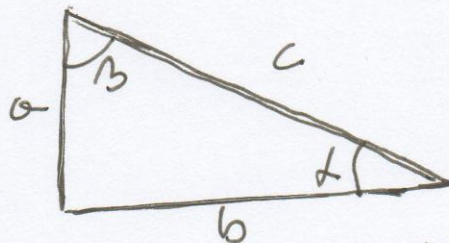
II. EKSPONENCIJALNE JEDNAČBE

$$\begin{aligned} \textcircled{1.} \quad 2^{3+x} &= 16 \\ 2^{3+x} &= 2^4 \\ 3+x &= 4 \\ x &= 4-3 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} \textcircled{2.} \quad \left(\frac{2}{3}\right)^{x-2} &= \frac{9}{4} \\ \left(\frac{2}{3}\right)^{x-2} &= \frac{3^2}{2^2} \\ \left(\frac{2}{3}\right)^{x-2} &= \left(\frac{3}{2}\right)^2 \\ \left(\frac{2}{3}\right)^{x-2} &= \left(\frac{2}{3}\right)^{-2} \\ x-2 &= -2 \\ x &= -2+2 \\ x &= 0 \end{aligned}$$

III. TRIGONOMETRIJA PRAVOKUTNOG TROKUTA

$$\begin{aligned} \textcircled{1.} \quad a &= 16 \text{ cm} \\ c &= 22.8 \text{ cm} \\ \frac{c}{b, d, B} &= 2. \end{aligned}$$



$$b = \sqrt{c^2 - a^2}$$

$$b = \sqrt{22.8^2 - 16^2}$$

$$b = \sqrt{519.84 - 256}$$

$$b = \sqrt{263.84}$$

$$b = 16.24 \text{ cm}$$

$$\sin d = \frac{a}{c} = \frac{16}{22.8} = 0.701754$$

$$d = 44^\circ 34' 4''$$

$$d + B = 90^\circ$$

$$B = 90^\circ - d$$

$$B = 90^\circ - 44^\circ 34' 4''$$

$$B = 45^\circ 25' 55''$$

$$\textcircled{2.} \quad \alpha = 50^\circ 30' 10''$$

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

$$\frac{\quad}{\beta, \alpha, \gamma = ?}$$

$$\alpha + \beta = 90^\circ$$

$$\beta = 90^\circ - 50^\circ 30' 10''$$

$$\beta = 39^\circ 29' 50''$$

$$c = \sqrt{a^2 + b^2}$$

$$c = \sqrt{9.83^2 + 12^2}$$

$$c = \sqrt{97.81 + 144}$$

$$c = \sqrt{241.81}$$

$$c = 15.56 \text{ cm}$$

$$\tan \alpha = \frac{a}{b} \Rightarrow a = b \cdot \tan \alpha$$

$$a = 12 \cdot \tan 50^\circ 30' 10''$$

$$a = 12 \cdot 0.824254$$

$$a = 9.89 \text{ cm}$$

IV. KOCKA, KVADAR, VALJAK, KUGLA - OPLošJE I VOLUMEN

KOCKA

$$a =$$

$$V = a^3$$

$$O = 6a^2$$

KVADAR

$$a =$$

$$b =$$

$$c =$$

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

$$O = 2(ab + bc + ac)$$

VALJAK

$$r =$$

$$n =$$

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

$$O = 2r^2 \pi (n + 1)$$

KUGLA

$$R =$$

$$V = \frac{4}{3} R^3 \pi$$

$$O = 4R^2 \pi$$