

ΠΡΟΑΓΩΓΙΚΕΣ ΕΞΕΤΑΣΕΙΣ Γ' ΤΑΞΗΣ
ΕΣΠΕΡΙΝΟΥ ΕΝΙΑΙΟΥ ΛΥΚΕΙΟΥ

ΔΕΥΤΕΡΑ 2 ΙΟΥΝΙΟΥ 2003

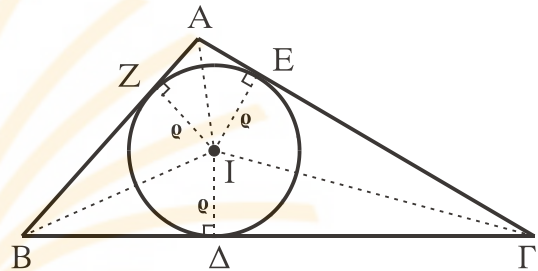
ΑΠΑΝΤΗΣΕΙΣ ΣΤΗ ΓΕΩΜΕΤΡΙΑ ΓΕΝΙΚΗΣ ΠΑΙΔΕΙΑΣ

ΘΕΜΑ 1^ο

A. $E = (AB\Gamma) = (IB\Gamma) + (IGA) + (IAB)$

$$= \frac{1}{2} \cdot \alpha \cdot \rho + \frac{1}{2} \cdot \beta \cdot \rho + \frac{1}{2} \cdot \gamma \cdot \rho$$

$$= \frac{1}{2} \cdot (\alpha + \beta + \gamma) \cdot \rho = \frac{1}{2} \cdot 2\tau \cdot \rho = \tau \cdot \rho$$



B. 1 – Λ, 2 – Σ, 3 – Σ, 4 – Σ, 5 – Σ.

ΘΕΜΑ 2^ο

$$\left. \begin{array}{l} \alpha. B\Gamma^2 = 13^2 = 169 \\ AB^2 + A\Gamma^2 = 5^2 + 12^2 = 25 + 144 = 169 \end{array} \right\} \Rightarrow B\Gamma^2 = AB^2 + A\Gamma^2$$

άρα το $AB\Gamma$ είναι ορθογώνιο με $\hat{A} = 90^\circ$

$$\beta. (AB\Gamma) = \frac{1}{2} \cdot AB \cdot A\Gamma = \frac{1}{2} \cdot 5 \cdot 12 \Rightarrow (AB\Gamma) = 30$$

$$\gamma. (AB\Gamma) = \frac{1}{2} \cdot B\Gamma \cdot u_\alpha \Rightarrow 30 = \frac{1}{2} \cdot 13 \cdot u_\alpha \Leftrightarrow 13 \cdot u_\alpha = 60 \Rightarrow u_\alpha = \frac{60}{13}$$

$$\delta. (AB\Gamma) = \frac{\alpha \cdot \beta \cdot \gamma}{4R} \Rightarrow 30 = \frac{13 \cdot 12 \cdot 5}{4R} \Leftrightarrow R = \frac{780}{120} \Leftrightarrow R = \frac{13}{2}$$

ΘΕΜΑ 3^ο

α. $OA = OB = OG = AB = BG = R$, άρα $\triangle OAB$ και $\triangle OBG$ ισόπλευρα
 $\angle AOG = 60^\circ + 60^\circ = 120^\circ = \omega_3$, άρα $AG = \lambda_3$

β. $(OABG) = 2(OAB) = 2 \cdot \frac{R^2 \sqrt{3}}{4} \Rightarrow (OABG) = \frac{R^2 \sqrt{3}}{2}$

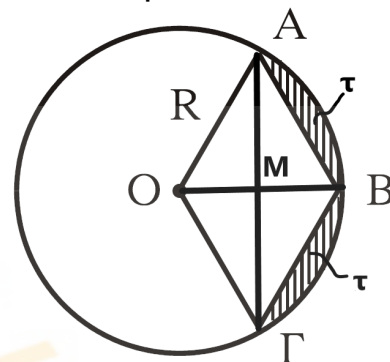
γ. $OM = \alpha_3 = \frac{R}{2}$

$\Delta_{(O,R)}^M = OM^2 - R^2 = \left(\frac{R}{2}\right)^2 - R^2 = \frac{R^2}{4} - R^2 \Rightarrow \Delta_{(O,R)}^M = -\frac{3R^2}{4}$

δ. $E_{\text{κυκλ.τομ.}\widehat{OAB}} = E_{\text{κυκλ.τομ.}\widehat{OBG}} = \frac{\pi R^2 \cdot 60}{360} \stackrel{R=2}{=} \frac{\pi \cdot 2^2}{6} = \frac{2\pi}{3}$

$(OAB) = (OBG) = \frac{R^2 \sqrt{3}}{4} \stackrel{R=2}{=} \frac{2^2 \cdot \sqrt{3}}{4} = \sqrt{3}$

$E_{\text{γραμμ.}} = 2 \cdot (\tau) = 2 \cdot \left[E_{\text{κυκλ.τομ.}\widehat{OAB}} - (OAB) \right] = 2 \cdot \left(\frac{2\pi}{3} - \sqrt{3} \right) = \frac{4\pi}{3} - 2\sqrt{3}$



ΘΕΜΑ 4^ο

α. $\Pi_{ABG\Delta EZ} = 6 \cdot \lambda_6 = 6 \cdot 2 = 12 \text{ km}$

υπόλοιπο διάστημα $= \Pi_{ABG\Delta EZ} - 5 = 12 - 5 = 7 \text{ km}$

β. $(ABG\Delta EZ) = 6(OAB) = 6 \cdot \frac{1}{2} \cdot \lambda_6 \cdot \alpha_6$

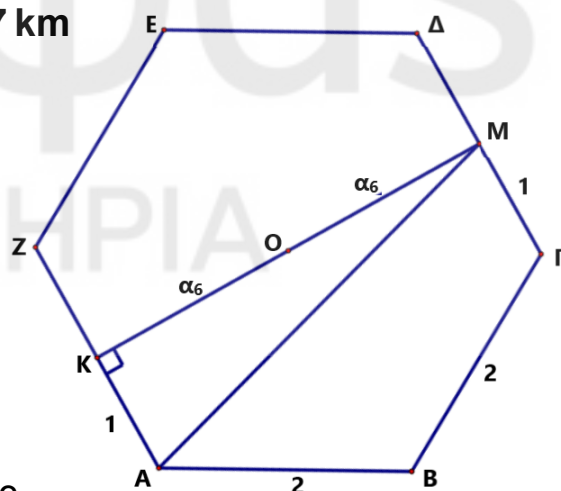
$= 3 \cdot 2 \cdot \frac{\sqrt{3} \cdot 2}{2} = 6\sqrt{3} \text{ km}^2$

γ. $KM = 2 \cdot KO = 2 \cdot \alpha_6 = 2 \cdot \frac{\sqrt{3} \cdot 2}{2} = 2\sqrt{3}$

Πυθαγόρειο Θεώρημα στο $\triangle AMK$:

$AM^2 = KM^2 + KA^2 = (2\sqrt{3})^2 + 1^2 = 12 + 1 = 13$

άρα $AM = \sqrt{13} \text{ km}$





Κελάφας

ΦΡΟΝΤΙΣΤΗΡΙΑ