

Σελ 58

4. Να εκφράσετε σε rad γωνία

i) 30°

$$i) \frac{a}{\pi} = \frac{30^\circ}{180^\circ} (=)$$

$$a = \frac{30\pi}{180} \Leftrightarrow$$

$$a = \frac{\pi}{6} \text{ rad}$$

ii) 120°

$$ii) \frac{a}{\pi} = \frac{120^\circ}{180^\circ} \Leftrightarrow$$

$$a = \frac{120\pi}{180} \Leftrightarrow$$

$$a = \frac{2\pi}{3} \text{ rad}$$

iii) 1260°

$$\frac{a}{\pi} = \frac{1260^\circ}{180^\circ} \Leftrightarrow$$

$$a = \frac{1260\pi}{180} \Leftrightarrow$$

$$a = 7\pi \text{ rad}$$

iv) -1485°

$$\frac{a}{\pi} = \frac{-1485^\circ}{180^\circ}$$

$$a = \frac{-1485\pi}{180}$$

$$a = -\frac{297\pi}{36} = -\frac{33\pi}{4} \text{ rad}$$

$$\frac{a}{\pi} = \frac{\mu}{180^\circ}$$

Σελ 58

5. Να μετατρέψετε σε μοίρες γωνία:

i) $\frac{\pi}{10}$ rad

$$\frac{\mu}{180^\circ} = \frac{\frac{\pi}{10}}{\pi} \Leftrightarrow$$

$$\frac{\mu}{180^\circ} = \frac{1}{10} \Leftrightarrow$$

$$\mu = \frac{180^\circ}{10} \Leftrightarrow$$

$$\mu = 18^\circ$$

ii) $\frac{5\pi}{6}$ rad

$$\frac{\mu}{180^\circ} = \frac{\frac{5\pi}{6}}{\pi} \Leftrightarrow$$

$$\frac{\mu}{180^\circ} = \frac{5}{6} \Leftrightarrow$$

$$\mu = \frac{5 \cdot 180^\circ}{6} \Leftrightarrow$$

$$\mu = 150^\circ$$

iii) $\frac{91\pi}{3}$ rad

$$\frac{\mu}{180^\circ} = \frac{\frac{91\pi}{3}}{\pi} \Leftrightarrow$$

$$\frac{\mu}{180^\circ} = \frac{91}{3} \Leftrightarrow$$

$$\mu = \frac{91 \cdot 180^\circ}{3} \Leftrightarrow$$

$$\mu = 5460^\circ$$

iv) 100rad .

$$\frac{\mu}{180^\circ} = \frac{100}{\pi} \Leftrightarrow$$

$$\mu = \frac{180^\circ \cdot 100}{\pi} \Leftrightarrow$$

$$\mu = \frac{18000^\circ}{\pi}$$

$$\frac{\mu}{180^\circ} = \frac{a}{\pi}$$

(Γεα 58)

6. Να υπολογίσετε τους τριγωνομετρικούς αριθμούς γωνίας

i) 1830°

$$\begin{array}{r|l} 1830^\circ & 360^\circ \\ -1800 & 5 \\ \hline & 30^\circ \end{array}$$

$$1830^\circ = 5 \cdot 360^\circ + 30^\circ$$

$$\eta\mu 1830^\circ = \eta\mu 30^\circ = \frac{1}{2}$$

$$\sigma\omega 1830^\circ = \sigma\omega 30^\circ = \frac{\sqrt{3}}{2}$$

$$\epsilon\phi 1830^\circ = \epsilon\phi 30^\circ = \frac{\sqrt{3}}{2}$$

$$\sigma\phi 1830^\circ = \sigma\phi 30^\circ = \frac{3}{2}$$

ii) 2940°

$$\begin{array}{r|l} 2940 & 360 \\ 2880 & 8 \\ \hline 60 & \end{array}$$

$$2940^\circ = 8 \cdot 360^\circ + 60^\circ$$

$$\eta\mu 2940^\circ = \eta\mu 60^\circ = \frac{\sqrt{3}}{2}$$

$$\sigma\omega 2940^\circ = \sigma\omega 60^\circ = \frac{1}{2}$$

$$\epsilon\phi 2940^\circ = \epsilon\phi 60^\circ = \sqrt{3}$$

$$\sigma\phi 2940^\circ = \sigma\phi 60^\circ = \frac{\sqrt{3}}{3}$$

iii) 1980°

$$\begin{array}{r|l} 1980 & 360 \\ 1800 & 5 \\ \hline 180 & \end{array}$$

$$1980^\circ = 5 \cdot 360^\circ + 180^\circ$$

$$\eta\mu 1980^\circ = \eta\mu 180^\circ = 0$$

$$\sigma\omega 1980^\circ = \sigma\omega 180^\circ = -1$$

$$\epsilon\phi 1980^\circ = \epsilon\phi 180^\circ = 0$$

$$\sigma\phi 1980^\circ = \sigma\phi 180^\circ : \Delta \text{ΕΝ ΟΡΙΖΕΤΑΙ}$$

iv) 3600°

$$3600^\circ = 10 \cdot 360^\circ + 0^\circ$$

$$\eta\mu 3600^\circ = \eta\mu 0^\circ = 0$$

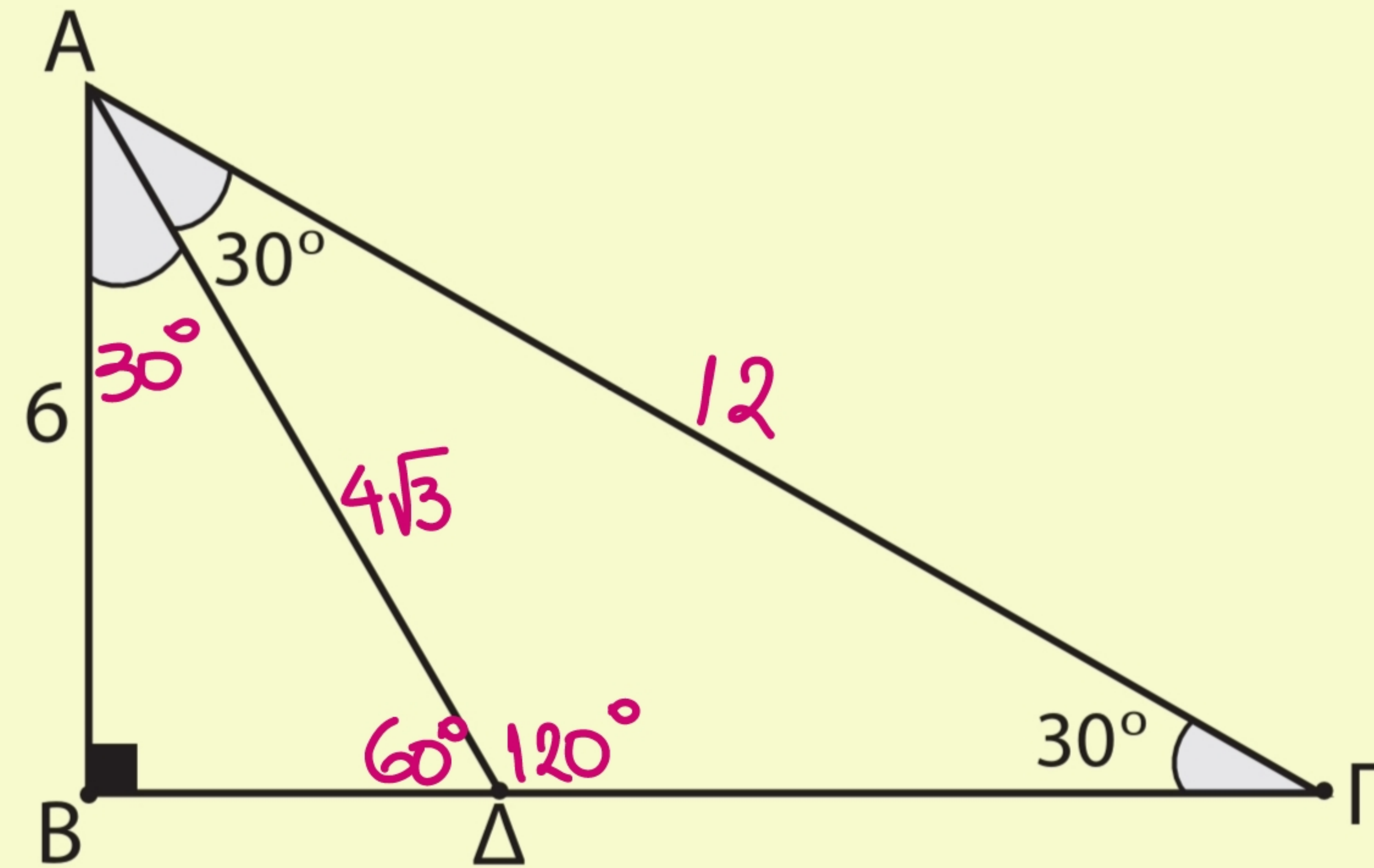
$$\sigma\omega 3600^\circ = \sigma\omega 0^\circ = 1$$

$$\epsilon\phi 3600^\circ = \epsilon\phi 0^\circ = 0$$

$$\sigma\phi 3600^\circ = \sigma\phi 0^\circ : \Delta \text{ΕΝ ΟΡΙΖΕΤΑΙ}$$

Βόμβαδα (Σελ 59)

3. Να βρείτε την περίμετρο και το εμβαδόν του τριγώνου ΑΓΔ του διπλανού σχήματος.



$$\Sigma \tau_0 \hat{A} \hat{B} \hat{\Gamma}: \eta \mu \hat{\Gamma} = \frac{AB}{A\Gamma} \Leftrightarrow \eta \mu 30^\circ = \frac{6}{A\Gamma} \Leftrightarrow \frac{1}{2} = \frac{6}{A\Gamma} \Leftrightarrow A\Gamma = 6 \cdot 2 (=) A\Gamma = 12$$

$$\Sigma \tau_0 \hat{A} \hat{\Delta} \hat{\Gamma}: \hat{A} \hat{\Delta} \hat{\Gamma} = 180^\circ - 30^\circ - 30^\circ = 120^\circ$$

$$\Sigma \tau_0 \hat{A} \hat{B} \hat{\Delta}: \hat{A} \hat{\Delta} \hat{B} = 180^\circ - 120^\circ = 60^\circ$$

$$\text{και } \hat{B} \hat{A} \hat{\Delta} = 180^\circ - 60^\circ - 90^\circ = 30^\circ$$

$$\text{και } \sin 30^\circ = \frac{AB}{A\Delta} \Leftrightarrow \frac{\sqrt{3}}{2} = \frac{6}{A\Delta} (=) A\Delta = \frac{12}{\sqrt{3}} = 4\sqrt{3}$$

Εφόσον $\triangle \hat{A}\Gamma\Delta$ ισοσκελές έχουμε ότι :

$$\Delta\Gamma = A\Delta = 4\sqrt{3}$$

$$\text{Οπότε : } \overline{\Pi_{A\Gamma\Delta}} = A\Gamma + \Gamma\Delta + A\Delta = 12 + 4\sqrt{3} + 4\sqrt{3} = (12 + 8\sqrt{3}) \text{ μον.}$$

$$\text{και : } \overline{E_{A\Gamma\Delta}} = \frac{1}{2} \cdot \Delta\Gamma \cdot AB = \frac{1}{2} \cdot 4\sqrt{3} \cdot 6 = 12\sqrt{3} \text{ τετρ. μον.}$$

$(\triangle \hat{A}\Gamma\Delta)$