Α΄ ΟΜΑΔΑΣ

1. Να βρείτε τους τριγωνομετρικούς αριθμούς της γωνίας:

i) 1200° **ii)** -2850°.

$1200^\circ = 3\cdot 360^\circ + 120^\circ$

$\eta\mu 1200^\circ = \eta\mu 120^\circ = \eta\mu(180^\circ - 60^\circ) = \eta\mu 60^\circ = \frac{\sqrt{3}}{2}$

$\sigma\upsilon\nu 1200^\circ = \sigma\upsilon\nu(180^\circ - 60^\circ) = -\sigma\upsilon\nu 60^\circ = -\frac{1}{2}$

$\varepsilon\phi 1200^\circ = -\sqrt{3}$

$\sigma\phi 1200^\circ = -\frac{\sqrt{3}}{3}$

$-2850^\circ = -8\cdot 360^\circ + 30^\circ$

$\eta\mu(-2850^\circ) = \eta\mu 30^\circ = \frac{1}{2}$

$\sigma\upsilon\nu(-2850^\circ) = \sigma\upsilon\nu 30^\circ = \frac{\sqrt{3}}{2}$

$\varepsilon\phi(-2850^\circ) = \varepsilon\phi 30^\circ = \frac{\sqrt{3}}{3}$

$\sigma\phi(-2850^\circ) = \sigma\phi 30^\circ = \sqrt{3}$

2. Να βρείτε τους τριγωνομετρικούς αριθμούς της γωνίας

i) $\frac{187\pi}{6}$ rad

$\frac{187\pi}{6} = 30\pi + \pi + \frac{\pi}{6}$

$\eta\mu\frac{187\pi}{6} = \eta\mu\left(\pi + \frac{\pi}{6}\right) =$

$= -\eta\mu\frac{\pi}{6} = -\frac{1}{2}$

$\sigma\upsilon\nu\frac{187\pi}{6} = -\sigma\upsilon\nu\frac{\pi}{6} = -\frac{\sqrt{3}}{2}$

$\varepsilon\phi\frac{187\pi}{6} = \frac{\sqrt{3}}{3}$

$\sigma\phi\frac{187\pi}{6} = \sqrt{3}$

ii) $\frac{21\pi}{4}$ rad.

$\frac{21\pi}{4} = 4\pi + \left(\pi + \frac{\pi}{4}\right)$

$\eta\mu\frac{21\pi}{4} = -\eta\mu\frac{\pi}{4} = -\frac{\sqrt{2}}{2}$

$\sigma\upsilon\nu\frac{21\pi}{4} = -\sigma\upsilon\nu\frac{\pi}{4} = -\frac{\sqrt{2}}{2}$

$\varepsilon\phi\frac{21\pi}{4} = 1$

$\sigma\phi\frac{21\pi}{4} = 1$

3. Σε κάθε τρίγωνο ΑΒΓ να αποδείξετε ότι:

i) $\eta\mu A = \eta\mu(B+\Gamma)$ **ii)** $\sigma\upsilon\nu A + \sigma\upsilon\nu(B+\Gamma) = 0$

iii) $\eta\mu\dfrac{A}{2} = \sigma\upsilon\nu\dfrac{B+\Gamma}{2}$ **iv)** $\sigma\upsilon\nu\dfrac{A}{2} = \eta\mu\dfrac{B+\Gamma}{2}$.

$\hat{A}+\hat{B}+\hat{\Gamma}=180^\circ$

$\hat{B}+\hat{\Gamma}=180^\circ-\hat{A}$

$\dfrac{\hat{B}+\hat{\Gamma}}{2}=\dfrac{180^\circ-\hat{A}}{2}=90^\circ-\dfrac{\hat{A}}{2}$

i) $\eta\mu(\hat{B}+\hat{\Gamma})=\eta\mu(180^\circ-\hat{A})=\eta\mu\hat{A}$

ii) $\sigma\upsilon\nu\hat{A}+\sigma\upsilon\nu(\hat{B}+\hat{\Gamma})=\sigma\upsilon\nu\hat{A}+\sigma\upsilon\nu(180^\circ-\hat{A})=\sigma\upsilon\nu\hat{A}-\sigma\upsilon\nu\hat{A}=0$

iii) $\sigma\upsilon\nu\dfrac{\hat{B}+\hat{\Gamma}}{2}=\sigma\upsilon\nu\left(90^\circ-\dfrac{\hat{A}}{2}\right)=\eta\mu\dfrac{\hat{A}}{2}$

iv) $\eta\mu\dfrac{\hat{B}+\hat{\Gamma}}{2}=\eta\mu\left(90^\circ-\dfrac{\hat{A}}{2}\right)=\sigma\upsilon\nu\dfrac{\hat{A}}{2}$

Για το επόμενο μάθημα
Α' 6 σελ 70.