

Β ΛΥΚΕΙΟΥ ΑΛΓΕΒΡΑ

14.14 1)

Παρατηρούμε ότι $\left(\frac{\pi}{4} - \omega\right) + \left(\frac{\pi}{4} + \omega\right) = \frac{\pi}{2} \Rightarrow \frac{\pi}{4} - \omega = \frac{\pi}{2} - \left(\frac{\pi}{4} + \omega\right)$ οπότε

$$\eta\mu\left(\frac{\pi}{4} - \omega\right) = \eta\mu\left[\frac{\pi}{2} - \left(\frac{\pi}{4} + \omega\right)\right] = \sigma\upsilon\nu\left(\frac{\pi}{4} + \omega\right)$$

14.14 2)

Παρατηρούμε ότι $\left(\frac{\pi}{3} + \omega\right) + \left(\frac{\pi}{6} - \omega\right) = \frac{\pi}{2} \Rightarrow \frac{\pi}{3} + \omega = \frac{\pi}{2} - \left(\frac{\pi}{6} - \omega\right)$

Οπότε

$$\epsilon\phi\left(\frac{\pi}{3} + \omega\right) = \epsilon\phi\left[\frac{\pi}{2} - \left(\frac{\pi}{6} - \omega\right)\right] = \sigma\phi\left(\frac{\pi}{6} - \omega\right) \Rightarrow$$

$$\Rightarrow \epsilon\phi\left(\frac{\pi}{3} + \omega\right) - \sigma\phi\left(\frac{\pi}{6} - \omega\right) = 0$$

14.14 3)

Παρατηρούμε ότι $(210^\circ - \omega) + (60^\circ + \omega) = 270^\circ \Rightarrow 210^\circ - \omega = 270^\circ - (60^\circ + \omega)$

Οπότε

$$\eta\mu(210^\circ - \omega) = \eta\mu[270^\circ - (60^\circ + \omega)] = -\sigma\upsilon\nu(60^\circ + \omega) \Rightarrow \eta\mu(210^\circ - \omega) + \sigma\upsilon\nu(60^\circ + \omega)$$

14.14 4)

Παρατηρούμε ότι : $(135^\circ - \omega) + (45^\circ + \omega) = 180^\circ \Rightarrow 135^\circ - \omega = 180^\circ - (45^\circ + \omega)$

Οπότε

$$\epsilon\phi(135^\circ - \omega) = \epsilon\phi[180^\circ - (45^\circ + \omega)] = -\epsilon\phi(45^\circ + \omega) \Rightarrow \epsilon\phi(135^\circ - \omega) + \epsilon\phi(45^\circ + \omega)$$

14.14 5)

Παρατηρούμε ότι : $(52^\circ + \omega) + (38^\circ - \omega) = 90^\circ \Rightarrow 52^\circ + \omega = 90^\circ - (38^\circ - \omega) \Rightarrow$

$$\Rightarrow \sigma\upsilon\nu(52^\circ + \omega) = \sigma\upsilon\nu[90^\circ - (38^\circ - \omega)] \Rightarrow (52^\circ + \omega) = \eta\mu(38^\circ - \omega)$$

Οπότε

$$\sigma\upsilon\nu^2(52^\circ + \omega) + \sigma\upsilon\nu^2(38^\circ - \omega) = \eta\mu^2(38^\circ - \omega) + \sigma\upsilon\nu^2(38^\circ - \omega) = 1$$

14.14 6)

Παρατηρούμε ότι : $470 + \alpha - \beta = 270 + 200 + \alpha - \beta \Rightarrow$

$$\Rightarrow \eta\mu(470^\circ + \alpha - \beta) = \eta\mu(270^\circ + 200^\circ + \alpha - \beta) = -\sigma\upsilon\nu(200^\circ + \alpha - \beta) =$$

$$= -\sigma\upsilon\nu(180^\circ + 20^\circ + \alpha - \beta) = \sigma\upsilon\nu(20^\circ + \alpha - \beta)$$

14.14 7)

Παρατηρούμε ότι : $\left(\frac{27\pi}{8} + \alpha - \beta\right) + \left(\frac{\pi}{8} - \alpha + \beta\right) = \frac{28\pi}{8} = \frac{24\pi}{8} + \frac{4\pi}{8} = 3\pi + \frac{\pi}{2} \Rightarrow$

$$\Rightarrow \left(\frac{27\pi}{8} + \alpha - \beta \right) = 3\pi + \frac{\pi}{2} - \left(\frac{\pi}{8} - \alpha + \beta \right)$$

Οπότε

$$\eta\mu\left(\frac{27\pi}{8} + \alpha - \beta\right) = \eta\mu\left[3\pi + \frac{\pi}{2} - \left(\frac{\pi}{8} - \alpha + \beta\right)\right] \Rightarrow$$

$$\Rightarrow \eta\mu\left(\frac{27\pi}{8} + \alpha - \beta\right) = \eta\mu\left[2\pi + \frac{3\pi}{2} - \left(\frac{\pi}{8} - \alpha + \beta\right)\right] = -\sigma\upsilon\nu\left(\frac{\pi}{8} - \alpha + \beta\right) \Rightarrow$$

$$\Rightarrow \eta\mu\left(\frac{27\pi}{8} + \alpha - \beta\right) + \sigma\upsilon\nu\left(\frac{\pi}{8} - \alpha + \beta\right) = 0$$