

Έστω $I = \int_0^{\frac{\pi}{2}} \frac{\eta\mu x - \sigma\upsilon\nu x}{\eta\mu x + \sigma\upsilon\nu x} dx$. Τότε

$$I = \int_0^{\frac{\pi}{2}} \frac{\sigma\upsilon\nu\left(\frac{\pi}{2} - x\right) - \eta\mu\left(\frac{\pi}{2} - x\right)}{\sigma\upsilon\nu\left(\frac{\pi}{2} - x\right) + \eta\mu\left(\frac{\pi}{2} - x\right)} dx$$

$\begin{array}{l} \text{θέτουμε } y = \frac{\pi}{2} - x \Rightarrow dy = -dx \\ \text{για } x=0 \Rightarrow y = \frac{\pi}{2} \\ \text{για } x = \frac{\pi}{2} \Rightarrow y=0 \end{array}$

$$= - \int_{\frac{\pi}{2}}^0 \frac{\sigma\upsilon\nu y - \eta\mu y}{\sigma\upsilon\nu y + \eta\mu y} dy =$$

$$= \int_0^{\frac{\pi}{2}} \frac{\sigma\upsilon\nu y - \eta\mu y}{\sigma\upsilon\nu y + \eta\mu y} dy = \int_0^{\frac{\pi}{2}} \frac{\sigma\upsilon\nu x - \eta\mu x}{\sigma\upsilon\nu x + \eta\mu x} dx = - \int_0^{\frac{\pi}{2}} \frac{\eta\mu x - \sigma\upsilon\nu x}{\sigma\upsilon\nu x + \eta\mu x} dx = -I$$

Επομένως

$$I = -I \Rightarrow 2I = 0 \Rightarrow I = 0$$