Τ Ρ Ι Γ Ω Ν 0 Μ Ε Τ Ρ Ι Α

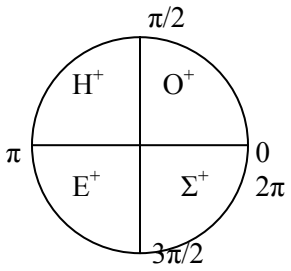
	0 0°	π/6 30°	π/4 45°	π/3 60°	π/2 90°	π 180°	3π/2 270°	2π 360°
ημ	0	½	$\sqrt{2}/2$	$\sqrt{3}/2$	1	0	-1	0
συν	1	$\sqrt{3}/2$	$\sqrt{2}/2$	½	0	-1	0	1
εφ	0	$\sqrt{3}/3$	1	$\sqrt{3}$	| |	0	| |	°
σφ	| |	$\sqrt{3}$	1	$\sqrt{3}/3$	0	| |	0	| |

ΒΑΣΙΚΕΣ ΤΑΥΤΟΤΗΤΕΣ

$\eta\mu^2x + \sigma\upsilon\nu^2 x = 1 \quad \Leftrightarrow \quad \eta\mu^2x = 1 - \sigma\upsilon\nu^2 x \qquad \varepsilon\varphi x = \frac{\eta\mu x}{\sigma\upsilon\nu x} \qquad \sigma\varphi x = \frac{\sigma\upsilon\nu x}{\eta\mu x} \qquad \varepsilon\varphi x \cdot \sigma\varphi x = 1$

$\sigma\upsilon\nu^2x = 1 - \eta\mu^2x \qquad \tau\varepsilon\mu x = \frac{1}{\sigma\upsilon\nu x}\ , \qquad \sigma\tau\varepsilon\mu x = \frac{1}{\eta\mu x}\ , \qquad \tau\varepsilon\mu^2x = 1 + \varepsilon\varphi^2x\ , \qquad \sigma\tau\varepsilon\mu^2x = 1 + \sigma\varphi^2x$

ΤΡΙΓΩΝΟΜΕΤΡΙΚΟΣ ΚΥΚΛΟΣ



Άθροισμα ή διαφορά 90° , 270°

ημx ↔ συνx
εφx ↔ σφx
τεμx ↔ στεμx

ημ (-α) = -ημα , συν (-α) = συνα , εφ (-α) =-εφα

ΝΟΜΟΣ ΗΜΙΤΟΝΩΝ

$$\frac{\alpha}{\eta\mu A} + \frac{\beta}{\eta\mu B} = \frac{\gamma}{\eta\mu\Gamma} = 2R \Longrightarrow \begin{matrix} \alpha = 2R\,\eta\mu A \\ \beta = 2R\,\eta\mu B \\ \gamma = 2R\,\eta\mu\Gamma \end{matrix}$$

ΕΜΒΑΔΟ ΤΡΙΓΩΝΟΥ

$E = \frac{1}{2}\,\alpha\beta\eta\mu\Gamma = \frac{1}{2}\,\beta\gamma\eta\mu A = \frac{1}{2}\,\alpha\gamma\eta\mu B$

ΝΟΜΟΣ ΣΥΝΗΜΙΤΟΝΩΝ

$$\alpha^2 = \beta^2 + \gamma^2 - 2\beta\gamma\sigma\upsilon\nu A \Longrightarrow \sigma\upsilon\nu A = \frac{\beta^2 + \gamma^2 - \alpha^2}{2\beta\gamma}$$

$$\beta^2 = \alpha^2 + \gamma^2 - 2\alpha\gamma\sigma\upsilon\nu B \Longrightarrow \sigma\upsilon\nu B = \frac{\alpha^2 + \gamma^2 - \beta^2}{2\alpha\gamma}$$

$$\gamma^2 = \alpha^2 + \beta^2 - 2\alpha\beta\sigma\upsilon\nu\Gamma \Longrightarrow \sigma\upsilon\nu\Gamma = \frac{\alpha^2 + \beta^2 - \gamma^2}{2\alpha\beta}$$

$\eta\mu(\alpha \pm \beta) = \eta\mu\alpha\sigma\upsilon\nu\beta \pm \eta\mu\beta\sigma\upsilon\nu\alpha$	$\eta\mu A + \eta\mu B = 2\eta\mu\frac{A+B}{2}\ \sigma\upsilon\nu\ \frac{A-B}{2}$	$2\eta\mu\alpha\sigma\upsilon\nu\beta = \eta\mu(\alpha+\beta) + \eta\mu(\alpha-\beta)$
$\sigma\upsilon\nu(\alpha \pm \beta) = \sigma\upsilon\nu\alpha\sigma\upsilon\nu\beta - \eta\mu\alpha\eta\mu\beta$	$\eta\mu A - \eta\mu B = 2\eta\mu\frac{A-B}{2}\ \sigma\upsilon\nu\ \frac{A+B}{2}$	$2\sigma\upsilon\nu\alpha\sigma\upsilon\nu\beta = \sigma\upsilon\nu(\alpha-\beta) + \sigma\upsilon\nu(\alpha+\beta)$
$\varepsilon\varphi(\alpha \pm \beta) = \frac{\varepsilon\varphi\alpha \pm \varepsilon\varphi\beta}{1 \mp \varepsilon\varphi\alpha\varepsilon\varphi\beta}$	$\sigma\upsilon\nu A + \sigma\upsilon\nu B = 2\sigma\upsilon\nu\frac{A+B}{2}\ \sigma\upsilon\nu\ \frac{A-B}{2}$	$2\eta\mu\alpha\eta\mu\beta = \sigma\upsilon\nu(\alpha-\beta) - \sigma\upsilon\nu(\alpha+\beta)$
$\sigma\varphi(\alpha \pm \beta) = \frac{\sigma\varphi\alpha\sigma\varphi\beta \mp 1}{\sigma\varphi\beta \pm \sigma\varphi\alpha}$	$\sigma\upsilon\nu A - \sigma\upsilon\nu B = 2\eta\mu\frac{A+B}{2}\ \eta\mu\ \frac{B-A}{2}$	$\eta\mu 2\alpha = 2\eta\mu\alpha\sigma\upsilon\nu\alpha$
	$\varepsilon\varphi A \pm \varepsilon\varphi B = \frac{\eta\mu(A \pm B)}{\sigma\upsilon\nu A\sigma\upsilon\nu B}$	$\sigma\upsilon\nu 2\alpha = \sigma\upsilon\nu^2\alpha - \eta\mu^2\alpha$ $= 2\sigma\upsilon\nu^2\alpha - 1$ $= 1 - 2\eta\mu^2\alpha$

$\eta\mu 2\alpha = \frac{2\varepsilon\varphi\alpha}{1+\varepsilon\varphi^2\alpha}$ $\quad \sigma\upsilon\nu 2\alpha = \frac{1-\varepsilon\varphi^2\alpha}{1+\varepsilon\varphi^2\alpha}$ $\quad \varepsilon\varphi 2\alpha = \frac{2\varepsilon\varphi\alpha}{1-\varepsilon\varphi^2\alpha}$ $\quad \sigma\varphi 2\alpha = \frac{1-\varepsilon\varphi^2\alpha}{2\varepsilon\varphi\alpha}$ $\quad \sigma\varphi 2\alpha = \frac{\sigma\varphi^2\alpha - 1}{2\sigma\varphi\alpha}$

$\varepsilon\varphi^2\alpha = \frac{1-\sigma\upsilon\nu 2\alpha}{1+\sigma\upsilon\nu 2\alpha}$ $\quad \eta\mu 3\alpha = 3\eta\mu\alpha - 4\eta\mu^3\alpha$ $\quad \sigma\upsilon\nu 3\alpha = 4\sigma\upsilon\nu^3\alpha - 3\sigma\upsilon\nu\alpha$

ΤΡΙΓΩΝΟΜΕΤΡΙΚΕΣ ΕΞΙΣΩΣΕΙΣ

$\eta\mu x = \eta\mu\alpha$	$\Rightarrow$	α) $x = 360^\circ\kappa + \alpha$	
		β) $x = 360^\circ\kappa + 180^\circ - \alpha$	$K \in Z$
$\sigma\upsilon\nu x = \sigma\upsilon\nu\alpha$	$\Rightarrow$	$x = 360^\circ\ \kappa \pm \alpha$	$K \in Z$
$\varepsilon\varphi\alpha = \varepsilon\varphi\alpha$	$\Rightarrow$	$x = 180^\circ\ \kappa + \alpha$	$K \in Z$
$\sigma\varphi x = \sigma\varphi x$	$\Rightarrow$	$x = 180^\circ\ \kappa + \alpha$	$K \in Z$