

Άσκηση 12 / Σελ. 64

(i)

$$\frac{\varepsilon_{\varphi a} + \varepsilon_{\varphi b}}{\varepsilon_{\varphi b} + \varepsilon_{\varphi a}} = \frac{\frac{\eta_{\mu b}}{\sigma_{\nu a}} + \frac{\sigma_{\nu b}}{\eta_{\mu a}}}{\frac{\eta_{\mu a}}{\sigma_{\nu b}} + \frac{\sigma_{\nu a}}{\eta_{\mu b}}} = \frac{\frac{\eta_{\mu a} \cdot \eta_{\mu b}}{\eta_{\mu b} \cdot \sigma_{\nu a}} + \frac{\sigma_{\nu a} \cdot \sigma_{\nu b}}{\eta_{\mu b} \cdot \sigma_{\nu a}}}{\frac{\eta_{\mu a} \cdot \eta_{\mu b}}{\sigma_{\nu b} \cdot \eta_{\mu a}} + \frac{\sigma_{\nu a} \cdot \sigma_{\nu b}}{\sigma_{\nu b} \cdot \eta_{\mu a}}} =$$

$$\frac{\varepsilon_{\varphi a}}{\varepsilon_{\varphi b}}$$

$$= \frac{\frac{\eta_{\mu a} \cdot \eta_{\mu b} + \sigma_{\nu a} \cdot \sigma_{\nu b}}{\eta_{\mu b} \cdot \sigma_{\nu a}}}{\frac{\eta_{\mu a} \cdot \eta_{\mu b} + \sigma_{\nu a} \cdot \sigma_{\nu b}}{\eta_{\mu a} \cdot \sigma_{\nu b}}} = \frac{(\eta_{\mu a} \cdot \eta_{\mu b} + \sigma_{\nu a} \cdot \sigma_{\nu b}) (\eta_{\mu a} \cdot \sigma_{\nu b})}{(\eta_{\mu b} \cdot \sigma_{\nu a}) (\eta_{\mu a} \cdot \eta_{\mu b} + \sigma_{\nu a} \cdot \sigma_{\nu b})} = \frac{\eta_{\mu a} \cdot \sigma_{\nu b}}{\eta_{\mu b} \cdot \sigma_{\nu a}} =$$

$$= \varepsilon_{\varphi a} \cdot \sigma_{\varphi b} = \boxed{\frac{\varepsilon_{\varphi a}}{\varepsilon_{\varphi b}}}$$

$$\varepsilon_{\varphi a} \cdot \varepsilon_{\varphi b} = \varepsilon_{\varphi a} \cdot \frac{1}{\varepsilon_{\varphi b}} = \frac{\varepsilon_{\varphi a}}{\varepsilon_{\varphi b}}$$

α6u 2-Β'ομ / Σελ. 64

N.δ.ο. $\eta\mu^4x + 6\omega^4x = 1 - 2\eta\mu^2x \cdot 6\omega^2x$

$$\eta\mu^4x + 6\omega^4x = \underbrace{(\eta\mu^2x)^2}_a + \underbrace{(6\omega^2x)^2}_b = (\eta\mu^2x + 6\omega^2x)^2 - 2\eta\mu^2x \cdot 6\omega^2x$$

$$= 1 - 2\eta\mu^2x \cdot 6\omega^2x \quad \text{o. ε. δ.}$$

b) $\eta\mu^6x + 6\omega^6x = 1 - 3\eta\mu^2x \cdot 6\omega^2x$

α' ηελος: $\eta\mu^6x + 6\omega^6x = \underbrace{(\eta\mu^2x)^3}_a + \underbrace{(6\omega^2x)^3}_b =$

$$= (\eta\mu^2x + 6\omega^2x)^3 - 3\eta\mu^2x \cdot 6\omega^2x \cdot (\eta\mu^2x + 6\omega^2x)$$

$$= 1^3 - 3\eta\mu^2x \cdot 6\omega^2x \cdot 1 \quad \text{o. ε. δ.}$$

$$a^2 + b^2 = (a+b)^2 - 2ab$$

$$a^3 + b^3 = (a+b)^3 - 3ab(a+b)$$

$$a^3 + b^3 = (a+b) \cdot (a^2 - ab + b^2)$$

$$a^3 + b^3 = (a+b)^3 - 3ab(a+b)$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$(a+b)^3 = a^3 + b^3 + 3ab(a+b) \quad (=)$$

$$(a+b)^3 - 3ab(a+b) = a^3 + b^3$$

$$\frac{26u.1/B'OM/\Sigma E \lambda 64}{}$$

$$Av \quad m\mu x + 6\omega x = a$$

$$i) \quad m\mu x \cdot 6\omega x$$

$$\{ \text{erw} \quad m\mu^2 x + 6\omega^2 x = 1 \Leftrightarrow$$

$$(m\mu x + 6\omega x)^2 - 2m\mu x \cdot 6\omega x = 1$$

$$a^2 - 2m\mu x \cdot 6\omega x = 1 \Leftrightarrow$$

$$-2m\mu x \cdot 6\omega x = -a^2 + 1$$

$$\frac{2m\mu x \cdot 6\omega x}{2} = \frac{a^2 - 1}{2}$$

$$ii) \quad \frac{1}{m\mu x} + \frac{1}{6\omega x} =$$

$$\frac{6\omega x}{m\mu x \cdot 6\omega x} + \frac{m\mu x}{m\mu x \cdot 6\omega x} =$$

$$\frac{6\omega x + m\mu x}{m\mu x \cdot 6\omega x} =$$

$$\frac{\frac{a}{2}}{a^2 - 1} = \frac{2a}{a^2 - 1}$$

$$(iii) \quad \cancel{4x} + 6\cancel{9x} = \frac{\cancel{4x} \cdot n\cancel{4}x}{6\cancel{w}x} + \frac{\cancel{6w}x}{n\cancel{4}x} = \frac{n\cancel{4}^2x + 6\cancel{w}^2x}{n\cancel{4}x + 6\cancel{w}x}$$

$$(iv) \quad n\cancel{4}^3x + 6\cancel{w}^3x = \underbrace{(n\cancel{4}x + 6\cancel{w}x)}^3 - 3\underbrace{n\cancel{4}x} \cdot \underbrace{6\cancel{w}x} \cdot \underbrace{(n\cancel{4}x + 6\cancel{w}x)} \\ \left| \cdot (n\cancel{4}x + 6\cancel{w}x) \cdot \left(\underline{n\cancel{4}^2x} - n\cancel{4}x \cdot 6\cancel{w}x + \underline{6\cancel{w}^2x} \right) \right.$$

$$(v) \quad n\cancel{4}^6x + 6\cancel{w}^6x$$

$$(vi) \quad n\cancel{4}^4x + 6\cancel{w}^4x$$

$$\left. \begin{array}{l} vii) \quad \frac{1}{n\cancel{4}^2x} + \frac{1}{6\cancel{w}^2x} \\ viii) \quad \frac{n\cancel{4}x}{6\cancel{w}^2x} + \frac{6\cancel{w}x}{n\cancel{4}^2x} \end{array} \right|$$