

ΒΛΥΚΕΙΟΥ ΑΛΓΕΒΡΑ

17.18

$$\begin{aligned}\alpha' \text{ μέλος} &= \frac{\sigma v^3 \alpha}{\eta \mu \alpha} + \frac{\varepsilon \varphi \alpha}{1 + \varepsilon \varphi^2 \alpha} = \sigma v^2 \alpha \cdot \frac{\sigma v \alpha}{\eta \mu \alpha} + \eta \mu^2 \alpha \cdot \frac{1}{1 + \varepsilon \varphi^2 \alpha} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{1}{\eta \mu \alpha \cdot \sigma v \alpha (1 + \varepsilon \varphi^2 \alpha)} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{1}{\eta \mu \alpha \cdot \sigma v \alpha + \eta \mu \alpha \cdot \sigma v \alpha \cdot \frac{\eta \mu^2 \alpha}{\sigma v^2 \alpha}} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{1}{\eta \mu \alpha \cdot \sigma v \alpha + \frac{\eta \mu^3 \alpha}{\sigma v \alpha}} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{\eta \mu \alpha \cdot \sigma v^2 \alpha + \eta \mu^3 \alpha}{\sigma v \alpha} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{\sigma v \alpha}{\eta \mu \alpha (\sigma v^2 \alpha + \eta \mu^2 \alpha)} = \\ &= \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \frac{\sigma v \alpha}{\eta \mu \alpha} = \sigma v^2 \alpha \cdot \sigma \varphi \alpha + \eta \mu^2 \alpha \cdot \sigma \varphi \alpha = \\ &= \sigma \varphi \alpha (\sigma v^2 \alpha + \eta \mu^2 \alpha) = \sigma \varphi \alpha = \\ &= \beta' \text{ μέλος}\end{aligned}$$