

13.4 1)

$$\begin{aligned}
\alpha' \text{ μέλος} &= (2\eta\mu\omega + 3\sigma\upsilon\nu\omega)^2 + (3\eta\mu\omega - 2\sigma\upsilon\nu\omega)^2 = \\
&= 4\eta\mu^2\omega + \cancel{12\eta\mu\omega\sigma\upsilon\nu\omega} + 9\sigma\upsilon\nu^2\omega + 9\eta\mu^2\omega - \cancel{12\eta\mu\omega\sigma\upsilon\nu\omega} + 4\sigma\upsilon\nu^2\omega = 13\eta\mu^2\omega + 13\sigma\upsilon\nu^2\omega = \\
&= 13(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) = 13 \cdot 1 = 13 = \\
&= \beta' \text{ μέλος}
\end{aligned}$$

13.4 2)

$$\begin{aligned}
\alpha' \text{ μέλος} &= (\eta\mu\omega + \sigma\upsilon\nu\omega)^2 + (\eta\mu\omega - \sigma\upsilon\nu\omega)^2 = \\
&= \eta\mu^2\omega + 2\eta\mu\omega \cdot \sigma\upsilon\nu\omega + \sigma\upsilon\nu^2\omega + \eta\mu^2\omega - 2\eta\mu\omega \cdot \sigma\upsilon\nu\omega + \sigma\upsilon\nu^2\omega = \\
&= 2(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) = 2 \cdot 1 = 2 = \\
&= \beta' \text{ μέλος}
\end{aligned}$$

13.4 3)

$$\begin{aligned}
\alpha' \text{ μέλος} &= (3\eta\mu\omega + 4\sigma\upsilon\nu\omega)^2 + (4\eta\mu\omega - 3\sigma\upsilon\nu\omega)^2 = \\
&= 9\eta\mu^2\omega + 24\eta\mu\omega \cdot \sigma\upsilon\nu\omega + 16\sigma\upsilon\nu^2\omega + 16\eta\mu^2\omega - 24\eta\mu\omega \cdot \sigma\upsilon\nu\omega + 9\sigma\upsilon\nu^2\omega = \\
&= 9(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) + 16(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) = 9 \cdot 1 + 16 \cdot 1 = 25 = \\
&= \beta' \text{ μέλος}
\end{aligned}$$

13.4 4)

$$\begin{aligned}
\alpha' \text{ μέλος} &= (\eta\mu\omega + \sigma\upsilon\nu\omega)^2 - (\eta\mu\omega - \sigma\upsilon\nu\omega)^2 = \\
&= \eta\mu^2\omega + 2\eta\mu\omega \cdot \sigma\upsilon\nu\omega + \sigma\upsilon\nu^2\omega - \eta\mu^2\omega + 2\eta\mu\omega \cdot \sigma\upsilon\nu\omega - \sigma\upsilon\nu^2\omega = \\
&= 4\eta\mu\omega \cdot \sigma\upsilon\nu\omega = \\
&= \beta' \text{ μέλος}
\end{aligned}$$

13.4 5)

$$\begin{aligned}
\alpha' \text{ μέλος} &= (x\sigma\upsilon\nu\omega + y\eta\mu\omega)^2 + (x\eta\mu\omega - y\sigma\upsilon\nu\omega)^2 = \\
&= x^2\sigma\upsilon\nu^2\omega + 2xy\sigma\upsilon\nu\omega \cdot \eta\mu\omega + y^2\eta\mu^2\omega + x^2\eta\mu^2\omega - 2xy\eta\mu\omega \cdot \sigma\upsilon\nu\omega + y^2\sigma\upsilon\nu^2\omega = \\
&= x^2(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) + y^2(\eta\mu^2\omega + \sigma\upsilon\nu^2\omega) = x^2 \cdot 1 + y^2 \cdot 1 = x^2 + y^2 = \\
&= \beta' \text{ μέλος}
\end{aligned}$$