

$$\begin{aligned}
\sin 4\alpha + \sin 4\beta + \sin 4\gamma &= 2 \sin 2(\alpha + \beta) \cos 2(\alpha - \beta) + 2 \sin 2\gamma \cos 2\gamma = \\
&= 2 \sin(360^\circ - 2\gamma) \cos(2\alpha - 2\gamma) + 2 \sin 2\gamma \cos(360^\circ - \{2\alpha + 2\beta\}) = \\
&\quad -2 \sin 2\gamma [\cos(2\alpha - 2\beta) - \cos(2\alpha + 2\beta)] = \\
&= -2 \sin 2\gamma [\cos 2\alpha \cos 2\beta + \sin 2\alpha \sin 2\beta - \cos 2\alpha \cos 2\beta + \sin 2\alpha \sin 2\beta] = \\
&\quad = -4 \sin 2\alpha \sin 2\beta \sin 2\gamma. \\
\cos 4\alpha + \cos 4\beta + \cos 4\gamma &= 2 \cos 2(\alpha + \beta) \cos 2(\alpha - \beta) + \cos^2 2\gamma - \sin^2 2\gamma = \\
&= 2 \cos(360^\circ - 2\gamma) \cos(2\alpha - 2\beta) + 2 \cos^2 2\gamma - 1 = \\
&\quad = 2 \cos 2\gamma [\cos(2\alpha - 2\beta) + \cos 2\gamma] - 1 = \\
&\quad 2 \cos 2\gamma [\cos(2\alpha - 2\beta) + \cos(2\alpha + 2\beta)] - 1 = \\
&= 2 \cos 2\gamma [\cos 2\alpha \cos 2\beta + \sin 2\alpha \sin 2\beta + \cos 2\alpha \cos 2\beta - \sin 2\alpha \sin 2\beta] - 1 = \\
&\quad = 4 \cos 2\alpha \cos 2\beta \cos 2\gamma - 1.
\end{aligned}$$

(Rosenthal Miksa, Pécs.)

A feladatot még megoldották: Bánó L., Bayer N., Ehrenfeld N., Epstein K., Erdélyi I., Erdős V., Esztó P., Fekete M., Fodor H., Földes R., Gádor Z., Heimlich P., Kiss E., Lusztig M., Paunz A., Pető L., Pichler S., Sárközy P., Schuster Gy., Schwarz Gy., Strasser I., Szekeres V., Szilas O., Tóth B., V. ker. math. kör.