2.47
8

$$\sin^2\alpha + \sin^2\beta + \sin^2\gamma = 2$$

$$\sin^2\gamma = 1 - \sin^2\alpha + 1 - \sin^2\beta$$

$$\sin^2(\alpha+\beta) = \cos^2\alpha + \cos^2\beta$$

$$\sin^2(\alpha+\beta) - \sin^2\left(\frac{\pi}{2}-\alpha\right) = \cos^2\beta$$

$$\left[\sin(\alpha+\beta) - \sin\left(\frac{\pi}{2}-\alpha\right)\right]\left[\sin(\alpha+\beta) + \sin\left(\frac{\pi}{2}-\alpha\right)\right] = \cos^2\beta$$

$$2\sin\left(\alpha+\frac{\beta}{2}-\frac{\pi}{4}\right)\cos\left(\frac{\beta}{2}+\frac{\pi}{4}\right) 2\sin\left(\frac{\pi}{4}+\frac{\beta}{2}\right)\cos\left(\alpha+\frac{\beta}{2}-\frac{\pi}{4}\right) = \cos^2\beta$$

$$\sin\left(2\alpha+\beta-\frac{\pi}{2}\right)\sin\left(\beta+\frac{\pi}{2}\right) = \cos^2\beta$$

$$-\cos(2\alpha+\beta) \cdot \cos\beta = \cos^2\beta \quad / : \cancel{\cos\beta}$$

$$\cos\beta\left[\cos\beta + \cos(2\alpha+\beta)\right] = 0$$

$$\boxed{\beta = \frac{\pi}{2}}$$

$$-\cos\beta = \cos(2\alpha+\beta)$$

$$\cos(\pi-\beta) = \cos(2\alpha+\beta)$$

$$\pi-\beta = 2\alpha+\beta+2\pi k \qquad k=0$$

$$\pi = 2\alpha+2\beta$$

$$\frac{\pi}{2} = \alpha+\beta$$

$$\boxed{\gamma = \frac{\pi}{2}}$$

$$\cos(\pi-\beta) = \cos(2\alpha+\beta)$$

$$\pi-\beta = -2\alpha-\beta+2\pi k$$

$$\pi = -2\alpha+2\pi k$$

לא מתאים
[illegible]