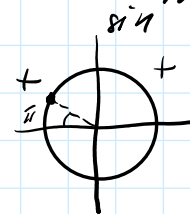


Найдите значение выражения  $8 \sin \frac{5\pi}{12} \cdot \cos \frac{5\pi}{12}$ .

$$\begin{aligned}
 8 \cdot \sin \frac{5\pi}{12} \cdot \cos \frac{5\pi}{12} &= 4 \cdot \underbrace{2 \cdot \sin \frac{5\pi}{12} \cdot \cos \frac{5\pi}{12}}_{\sin \frac{5\pi}{6}} = 4 \cdot \sin \left( 2 \cdot \frac{5\pi}{12} \right) = \\
 &= 4 \cdot \sin \frac{5\pi}{6} = 4 \cdot \sin \left( \pi - \frac{\pi}{6} \right) = 4 \cdot \sin \frac{\pi}{6} = \\
 &= 4 \cdot \frac{1}{2} = 2
 \end{aligned}$$



Найдите  $\operatorname{tg}^2 \alpha$ , если  $4 \sin^2 \alpha + 9 \cos^2 \alpha = 6$ .

$$4 \sin^2 \alpha + 4 \cos^2 \alpha + 5 \cos^2 \alpha = 6$$

$$4 (\underbrace{\sin^2 \alpha + \cos^2 \alpha}_1) + 5 \cos^2 \alpha = 6$$

$$4 + 5 \cos^2 \alpha = 6 \Rightarrow 5 \cos^2 \alpha = 2 \Rightarrow \cos^2 \alpha = \frac{2}{5}$$

$$\sin^2 \alpha + \frac{2}{5} = 1 \Rightarrow \sin^2 \alpha = \frac{3}{5}$$

$$\operatorname{tg}^2 \alpha = \frac{\sin^2 \alpha}{\cos^2 \alpha} = \frac{3}{5} : \frac{2}{5} = \frac{3}{5} \cdot \frac{5}{2} = \frac{3}{2} = 1,5$$

Найдите  $3 \cos 2\alpha$ , если  $\cos \alpha = \frac{1}{2}$ .

$$\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha = \cos^2 \alpha - (1 - \cos^2 \alpha) = 2 \cos^2 \alpha - 1$$

$$3 \cos 2\alpha = 6 \cos^2 \alpha - 3 = 6 \cdot \left( \frac{1}{2} \right)^2 - 3 = \frac{6}{4} - 3 = \frac{3}{2} - 3 = -1,5$$