

esim Määritä lausekkeen $\cos \alpha$ tarkka arvo, kun $\sin \alpha = -\frac{1}{5}$ ja $\pi < \alpha < \frac{3\pi}{2}$.

Rekt.

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$\cos^2 \alpha = 1 - \sin^2 \alpha \quad \sqrt{\quad}$$

$$\cos \alpha = \pm \sqrt{1 - \sin^2 \alpha}$$

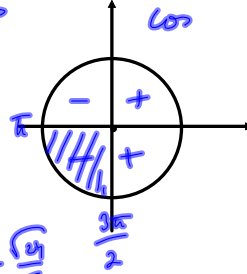
$$\cos \alpha = -\sqrt{1 - \sin^2 \alpha}$$

sij. $\sin \alpha = -\frac{1}{5}$

$$= -\sqrt{1 - \left(-\frac{1}{5}\right)^2}$$

$$= -\sqrt{\frac{25}{25} - \frac{1}{25}} = -\sqrt{\frac{24}{25}}$$

$$= -\frac{2\sqrt{6}}{5}$$



esim

$$\begin{aligned} \sin 2x &= \cos x \\ 2 \sin x \cos x &= \cos x \\ 2 \sin x \cos x - \cos x &= 0 \\ \cos x (2 \sin x - 1) &= 0 \end{aligned}$$

$$\sin 2x = 2 \sin x \cos x$$

NOLAN NOLLOSAIKANTO

$$\cos x = 0 \quad \text{tai} \quad 2 \sin x - 1 = 0$$

$$2 \sin x = 1$$

$$\sin x = \frac{1}{2}$$



\rightarrow $x = \frac{\pi}{2} + n2\pi$ tai $x = \frac{3\pi}{2} + n2\pi$

$x = \frac{\pi}{6} + n2\pi$ tai $x = \frac{5\pi}{6} + n2\pi$



$n=0: \frac{\pi}{2}$

$n=1: \frac{\pi}{2} + 2\pi = \frac{5\pi}{2}$

$n=2: \frac{\pi}{2} + 4\pi = \frac{9\pi}{2}$

$\sqrt{\quad}$ $x = \frac{\pi}{2} + n2\pi$ tai $x = \frac{3\pi}{2} + n2\pi$ tai $x = \frac{\pi}{6} + n2\pi$ tai $x = \frac{5\pi}{6} + n2\pi$

$$x = \pm \frac{\pi}{2} + n2\pi$$