

Peruskaavat

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

$$\begin{aligned} (\sin x)^2 &= \sin^2 x \\ &= \sin x \cdot \sin x \end{aligned}$$

esim Määritä lausekkeen $\cos \alpha$ tarkka arvo, kun

$$\sin \alpha = -\frac{1}{5} \text{ ja } \pi < \alpha < \frac{3\pi}{2}.$$

Ratk.
I tps

$$\begin{aligned} \sin^2 \alpha + \cos^2 \alpha &= 1 \\ \cos^2 \alpha &= 1 - \sin^2 \alpha \end{aligned}$$

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

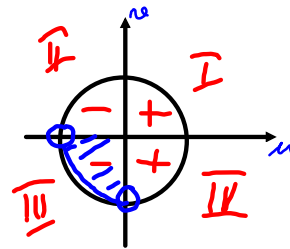
$$= -\sqrt{1 - \left(-\frac{1}{5}\right)^2}$$

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

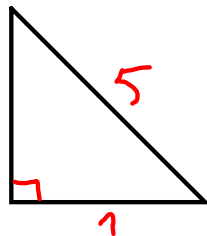
$$= -\sqrt{\frac{24}{25}}$$

$$= -\frac{\sqrt{24}}{5} = -\frac{2\sqrt{6}}{5}$$

$$\underline{\underline{V: \cos \alpha = -\frac{2\sqrt{6}}{5}}}$$



II tps



$\sin \alpha$