27/9/2018

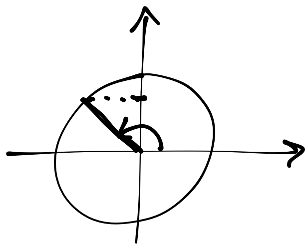
- $\sin(\arcsin x) = x \quad \forall x \in [-1,1]$ è VERA

- $\arcsin(\sin x) = x$ è VERA o FALSA? è FALSA

CONTROESEMPIO

$x = \frac{3}{4}\pi \qquad \sin\left(\frac{3}{4}\pi\right) = \frac{\sqrt{2}}{2} \qquad \arcsin\left(\sin\frac{3}{4}\pi\right) =$

$= \arcsin\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4}$



$\arcsin(\sin x) = x \quad \forall x \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ è la formulazione corretta

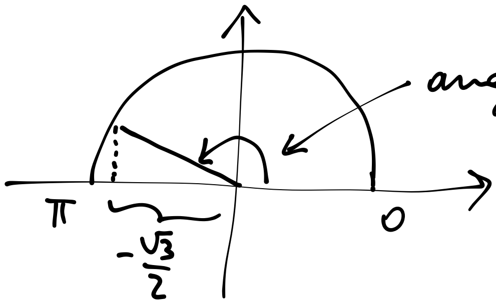
- $\tan(\arctan x) = x \quad x \in \mathbb{R}$
- $\arctan(\tan x) = x \quad \forall x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

$x = \frac{3}{4}\pi \qquad \tan\frac{3}{4}\pi = -1 \qquad \arctan\left(\tan\frac{3}{4}\pi\right) = \arctan(-1) = -\frac{\pi}{4}$

531 $\arcsin\frac{1}{2}+\arccos\left(-\frac{\sqrt{3}}{2}\right)$ $[\pi]$

532 $\arcsin 1+\arctan(-1)$ $\left[\frac{\pi}{4}\right]$

531) $\arcsin\frac{1}{2}+\arccos\left(-\frac{\sqrt{3}}{2}\right)=\cancel{\frac{\pi}{6}}+\pi-\cancel{\frac{\pi}{6}}=\pi$

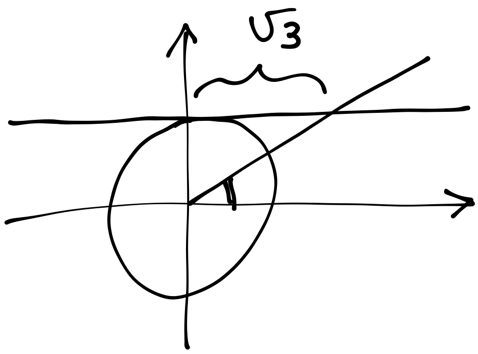


angolo $\pi-\frac{\pi}{6}=\frac{5}{6}\pi$

532) $\arcsin 1+\arctan(-1)=\frac{\pi}{2}+\left(-\frac{\pi}{4}\right)=\frac{\pi}{4}$

536 $\arccos(-1)+\arcsin\left(-\frac{1}{2}\right)-\operatorname{arccot}\sqrt{3}=\left[\frac{2}{3}\pi\right]$

$$=\pi+\left(-\frac{\pi}{6}\right)-\frac{\pi}{6}=\pi-\frac{\pi}{3}=\frac{2}{3}\pi$$



554 $\sin\left(\arccos\frac{\sqrt{2}}{2}\right)$ $\left[\frac{\sqrt{2}}{2}\right]$

555 $\cos\left[\arcsin\left(-\frac{\sqrt{3}}{2}\right)\right]$ $\left[\frac{1}{2}\right]$

554) $\sin\underbrace{\left(\arccos\frac{\sqrt{2}}{2}\right)}_{\alpha} = +\sqrt{1-\cos^2\left(\arccos\frac{\sqrt{2}}{2}\right)} = \sqrt{1-\left(\frac{\sqrt{2}}{2}\right)^2} =$

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

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

$$= \sqrt{1-\frac{1}{2}} = \sqrt{\frac{1}{2}} = \frac{1}{\sqrt{2}} = \boxed{\frac{\sqrt{2}}{2}}$$

555) $\cos\left[\arcsin\left(-\frac{\sqrt{3}}{2}\right)\right] = +\sqrt{1-\sin^2\left(\arcsin\left(-\frac{\sqrt{3}}{2}\right)\right)} =$

$$= \sqrt{1-\left(-\frac{\sqrt{3}}{2}\right)^2} = \sqrt{1-\frac{3}{4}} = \sqrt{\frac{1}{4}} = \boxed{\frac{1}{2}}$$