

FORMOLE DI ADDIZIONE E SOTTRAZIONE

①

- 1) $\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$
- 2) $\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$
- 3) $\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$
- 4) $\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$.

Esercizi

$$1) \sin\left(\frac{\pi}{3} + x\right) - \cos\left(\frac{\pi}{6} - x\right) =$$

si applica
regole n° 1

in questo
caso $\alpha = \frac{\pi}{3}$

$$\text{e } \beta = x$$

si applica
regole n° 4

in questo

$$\text{caso } \alpha = \frac{\pi}{6} \text{ e } \beta = x$$

QUINDI

$$\sin \frac{\pi}{3} \cos x + \cos \frac{\pi}{3} \sin x - \left(\cos \frac{\pi}{6} \cos x + \sin \frac{\pi}{6} \sin x \right) =$$

$$\frac{\sqrt{3}}{2} \cos x + \frac{1}{2} \sin x - \left(\frac{\sqrt{3}}{2} \cos x + \frac{1}{2} \sin x \right) =$$

$$\cancel{\frac{\sqrt{3}}{2} \cos x} + \cancel{\frac{1}{2} \sin x} - \cancel{\frac{\sqrt{3}}{2} \cos x} - \cancel{\frac{1}{2} \sin x} = 0$$

(2)

2) $\cos\left(\frac{3}{4}\pi + x\right) =$ si applica regole n° 3

$$\cos \frac{3}{4}\pi \cos x - \operatorname{sen} \frac{3}{4}\pi \operatorname{sen} x = \quad (*)$$

come alcai noteto $\frac{3}{4}\pi$ non figure in tabelle dobbiamo quindi calcolarlo e possiamo utilizzare le formule precedentemente scritte cioè

$$\frac{3}{4}\pi = \pi - \frac{\pi}{4} \quad \left(\text{in fatto } \frac{\pi - \pi}{4} = \frac{4\pi - \pi}{4} = \frac{3}{4}\pi\right)$$

quindi:

$$\begin{aligned} \cos \frac{3}{4}\pi &= \cos\left(\pi - \frac{\pi}{4}\right) = \cos \pi \cos \frac{\pi}{4} + \operatorname{sen} \pi \operatorname{sen} \frac{\pi}{4} = \\ &= -1\left(\frac{\sqrt{2}}{2}\right) + 0\left(\frac{\sqrt{2}}{2}\right) = -\frac{\sqrt{2}}{2} \end{aligned}$$

$$\begin{aligned} \operatorname{sen} \frac{3}{4}\pi &= \operatorname{sen}\left(\pi - \frac{\pi}{4}\right) = \operatorname{sen} \pi \cos \frac{\pi}{4} - \cos \pi \operatorname{sen} \frac{\pi}{4} = \\ &= 0\left(\frac{\sqrt{2}}{2}\right) - (-1)\left(\frac{\sqrt{2}}{2}\right) = +\frac{\sqrt{2}}{2} \end{aligned}$$

sostituisci i valori trovati in (*)

$$\cos\left(\frac{3}{4}\pi + x\right) = -\frac{\sqrt{2}}{2} \cos x - \frac{\sqrt{2}}{2} \operatorname{sen} x$$

Fai ORA EX pag 524 del n° 87 el 90

E INVIALI A : quarto@everydaymath.it