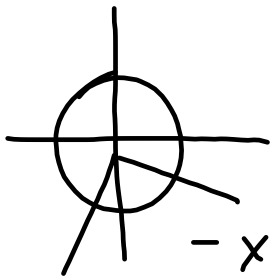
84 p. 765

$$y = \sin(-x) + \sin\left(\frac{3}{2}\pi - x\right)$$

$$= -\sin x - \cos x$$

$$= -(\sin x + \cos x)(\dots)$$

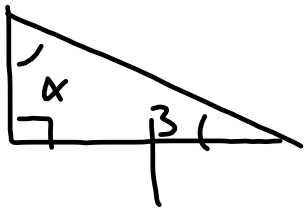


$\frac{3}{2}\pi - x$

77

$\alpha, \beta \in I\,Q$

$\beta = \frac{\pi}{2} - \alpha$



$$\frac{tg^2\alpha}{(1-tg^2\alpha)^2} = \frac{tg^2\left(\frac{\pi}{2}-\alpha\right)}{\left(1-tg^2\left(\frac{\pi}{2}-\alpha\right)\right)^2}$$

$$\frac{tg^2\alpha}{(1-tg^2\alpha)^2} = \frac{ctg^2\alpha}{(1-ctg^2\alpha)^2}$$

$$\frac{\frac{\sin^2\alpha}{\cos^2\alpha}}{\left[1-\frac{\sin^2\alpha}{\cos^2\alpha}\right]^2} = \frac{\frac{\cos^2\alpha}{\sin^2\alpha}}{\left[1-\frac{\cos^2\alpha}{\sin^2\alpha}\right]^2}$$

$$\frac{\sin^2\alpha}{\cos^2\alpha} \cdot \frac{\cos^4\alpha}{(\cos^2\alpha-\sin^2\alpha)^2} = \frac{\cos^2\alpha}{\sin^2\alpha} \cdot \frac{\sin^4\alpha}{(\sin^2\alpha-\cos^2\alpha)^2}$$

[V]

EQUAZIONI GONIOMETRICHE

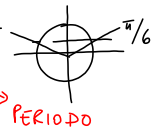
Equazioni in cui l'incognita è contenuta nell'argomento di una funzione goniometrica

ES: $\sin x = \frac{1}{2}$ $\cos x = -1$

$tg\, x = \frac{\sqrt{3}}{3}$

• ELEMENTARI

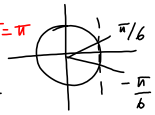
1) $\sin x = \frac{1}{2}$



$x_1 = \frac{\pi}{6} + 2k\pi$ → PERIODO

$x_2 = \frac{5}{6}\pi + 2k\pi$

2) $\cos\left(2x - \frac{\pi}{2}\right) = \frac{\sqrt{3}}{2}$ $T = \pi$



a) $2x - \frac{\pi}{2} = \frac{\pi}{6} + 2k\pi$

$2x = \frac{\pi}{6} + \frac{\pi}{2} + 2k\pi$

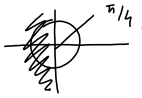
$2x = \frac{4}{6}\pi + 2k\pi \rightarrow 2x = \frac{2}{3}\pi + 2k\pi$

$x = \frac{\pi}{3} + k\pi$

b) $2x - \frac{\pi}{2} = -\frac{\pi}{6} + 2k\pi$

$2x = \frac{\pi}{3} + 2k\pi \rightarrow x = \frac{\pi}{6} + k\pi$

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



$3x + \frac{\pi}{6} = \frac{\pi}{4} + k\pi$

$3x = \frac{\pi}{4} - \frac{\pi}{6} + k\pi$

$3x = \frac{3-2}{12}\pi + k\pi$ $3x = \frac{\pi}{12} + k\pi$

$x = \frac{\pi}{36} + k\frac{\pi}{3}$

4) $2\sin^2 x + \sin x = 0$

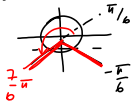
$\sin x(2\sin x + 1) = 0$ → $\sin x = 0$ (A) ; $2\sin x + 1 = 0$ → $\sin x = -\frac{1}{2}$

(A) $\sin x = 0$

$x_1 = 0 + 2k\pi$

$x_2 = \pi + 2k\pi$ $\Rightarrow x = 0 + k\pi$

(B) $\sin x = -\frac{1}{2}$



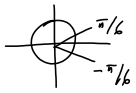
$x_1 = \frac{7}{6}\pi + 2k\pi$

$x_2 = -\frac{\pi}{6} + 2k\pi$

5) $4\cos^2 x - 4\sqrt{3}\cos x + 3 = 0$

$\Delta = 48 - 48 = 0$

$\cos x = \frac{4\sqrt{3}}{8} = \frac{\sqrt{3}}{2}$



$x = \pm\frac{\pi}{6} + 2k\pi$

6) $\sin 2x - \cos x = 0$

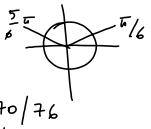
$2\sin x\cos x - \cos x = 0$

$\cos x(2\sin x - 1) = 0$ → $\cos x = 0$ (A) ; $\sin x = \frac{1}{2}$

$\cos x = 0 \rightarrow x = \frac{\pi}{2} + k\pi$

(oppure $x_1 = \frac{\pi}{2} + 2k\pi$; $x_2 = \frac{3}{2}\pi + 2k\pi$)

$\sin x = \frac{1}{2}$ → $x_1 = \frac{\pi}{6} + 2k\pi$; $x_2 = \frac{5}{6}\pi + 2k\pi$



X CASA:
- p. 815 n° 68/70/76
- p. 822 n° 177/194/183
- p. 773 n° 228
- p. 765 n° 81/83