

30/10/2018

14 $2 \sin x = -\sqrt{2}$ $\left[\frac{5}{4}\pi + 2k\pi; \frac{7}{4}\pi + 2k\pi \right]$

15 $\sin x - 1 = 0$ $\left[\frac{\pi}{2} + 2k\pi \right]$

16 $2 \sin x - 4 = 3$ [impossibile]

17 $\sin x = \cos \frac{\pi}{6}$ $\left[\frac{\pi}{3} + 2k\pi; \frac{2}{3}\pi + 2k\pi \right]$

14) $2 \sin x = -\sqrt{2}$

$\sin x = -\frac{\sqrt{2}}{2}$ $\alpha = -\frac{\pi}{4}$

$x = -\frac{\pi}{4} + 2k\pi$ \vee $x = \pi - \left(-\frac{\pi}{4}\right) + 2k\pi$

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

(*) $x = -\frac{\pi}{4} + 2k\pi$ \vee $x = \frac{5}{4}\pi + 2k\pi$

ATTENZIONE!

Il risultato del libro è $x = \frac{5}{4}\pi + 2k\pi$ \vee $x = \frac{7}{4}\pi + 2k\pi$ (**)

ma è ancora l'insieme soluzione trovato.

Infatti

$k=1 \Rightarrow -\frac{\pi}{4} + 2\pi = \frac{7}{4}\pi$ nel (*)

$k=-1 \Rightarrow \frac{7}{4}\pi - 2\pi = -\frac{\pi}{4}$ nel (**)

$$15] \sin x - 1 = 0$$

$$\sin x = 1 \quad x = \frac{\pi}{2} + 2k\pi$$

$$16] 2 \sin x - 4 = 3$$

$$\sin x = \frac{7}{2} > 1 \quad \text{IMPOSSIBILE}$$

$$17] \sin x = \cos \frac{\pi}{6}$$

$$\sin x = \frac{\sqrt{3}}{2}$$

$$\alpha = \frac{\pi}{3}$$

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

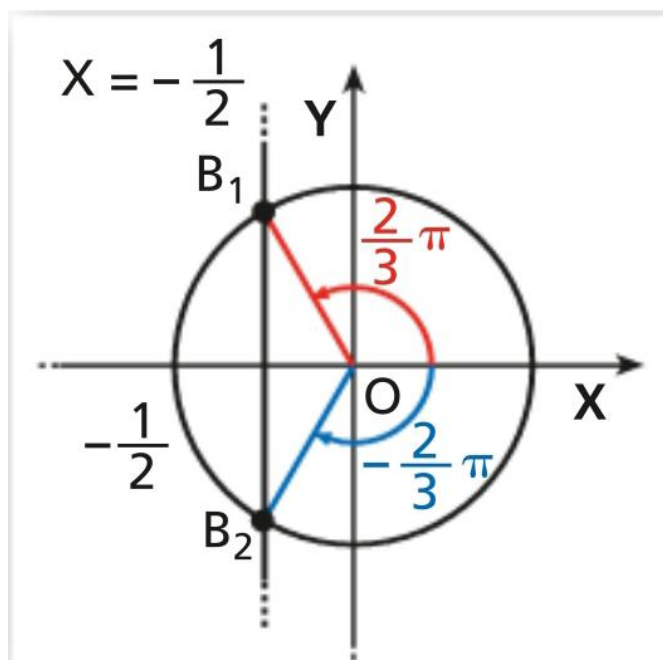
$$x = \frac{\pi}{3} + 2k\pi \quad \vee \quad x = \frac{2}{3}\pi + 2k\pi$$

EQUAZIONI DEL TIPO

$$\cos x = b$$

• $b < -1 \vee b > 1 \Rightarrow$ IMPOSSIBILE

• $-1 \leq b \leq 1 \Rightarrow$ DETERMINATA



$$\alpha = \arccos b$$

$$x = \pm \alpha + 2k\pi$$

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$$2 \cos x = \sqrt{2}$$

$$\left[\pm \frac{\pi}{4} + 2k\pi \right]$$

$$\cos x = \frac{\sqrt{2}}{2}$$

$$\alpha = \frac{\pi}{4} \Rightarrow x = \pm \frac{\pi}{4} + 2k\pi$$

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$$8 \cos x = 1$$

$$\left[\pm \arccos \frac{1}{8} + 2k\pi \right]$$

$$\cos x = \frac{1}{8}$$

$$\alpha = \arccos \frac{1}{8} \Rightarrow x = \pm \arccos \frac{1}{8} + 2k\pi$$

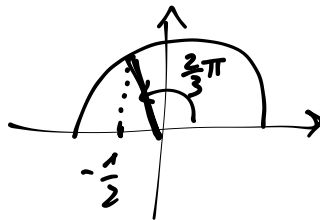
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$$2 \cos \left(x + \frac{\pi}{6} \right) + 1 = 0$$

$$x + \frac{\pi}{6} = y \rightsquigarrow \cos y = -\frac{1}{2}$$

$$\cos \left(x + \frac{\pi}{6} \right) = -\frac{1}{2}$$

$$\alpha = \arccos \left(-\frac{1}{2} \right) = \frac{2}{3}\pi$$



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

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

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

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

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

$$x = -\frac{5}{6}\pi + 2k\pi \quad \vee \quad x = \frac{\pi}{2} + 2k\pi$$

$$\left| \cos\left(x - \frac{\pi}{4}\right) \right| = \frac{\sqrt{2}}{2}$$

↳ In generale $|f(x)| = k$

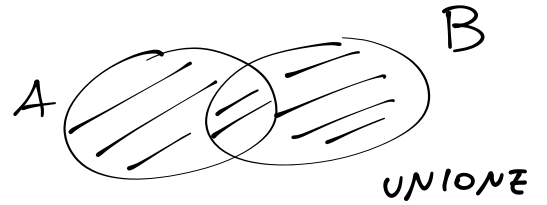
$$k \geq 0$$

$$\Downarrow$$

$$f(x) = \pm k$$

$$\Downarrow$$

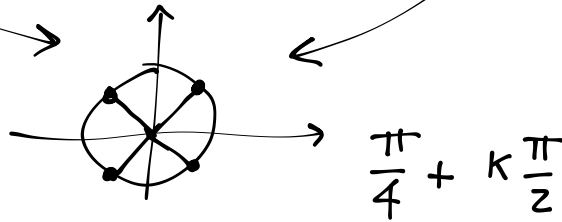
$$f(x) = -k \vee f(x) = k$$



$$A \cup B = \{x \mid x \in A \vee x \in B\}$$

$$\cos\left(x - \frac{\pi}{4}\right) = -\frac{\sqrt{2}}{2} \quad \vee \quad \cos\left(x - \frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}$$

$$x - \frac{\pi}{4} = \pm \frac{3}{4}\pi + 2k\pi \quad \vee \quad x - \frac{\pi}{4} = \pm \frac{\pi}{4} + 2k\pi$$



$$x - \frac{\pi}{4} = \frac{\pi}{4} + k \frac{\pi}{2}$$

$$x = \frac{\pi}{4} + \frac{\pi}{4} + k \frac{\pi}{2} \Rightarrow x = \frac{\pi}{2} + k \frac{\pi}{2}$$

$$x = (k+1) \frac{\pi}{2}$$

$$\Downarrow$$

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

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$$\tan x = 2$$

$$x = \arctan 2 + k\pi$$

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$$3 \tan\left(x + \frac{\pi}{9}\right) - \sqrt{3} = 0$$

$$\left[\frac{\pi}{18} + k\pi\right]$$

$$3 \tan\left(x + \frac{\pi}{9}\right) = \sqrt{3}$$

$$\tan\left(x + \frac{\pi}{9}\right) = \frac{\sqrt{3}}{3}$$

$$x + \frac{\pi}{9} = \frac{\pi}{6} + k\pi$$

$$x = \frac{\pi}{6} - \frac{\pi}{9} + k\pi$$

$$x = \frac{3\pi - 2\pi}{18} + k\pi$$

$$x = \frac{\pi}{18} + k\pi$$