$-/- = +$

$+/+ = +$

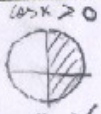
$$y = \frac{\sin 2x - \cos x}{\sqrt{1-2\sin^2 x}} \Rightarrow \begin{cases} \sin 2x - \cos x > 0 \\ \sqrt{1-2\sin^2 x} \neq 0 \\ \sqrt{1-2\sin^2 x} > 0 \end{cases} \quad \begin{cases} 2\sin x\cos x - \cos x > 0 \\ 1-2\sin^2 x \neq 0 \\ 1-2\sin^2 x \geq 0 \end{cases}$$

$f(x)/g(x) > 0$ $\qquad$ $\frac{f(x)}{g(x)} > 0$

$$\begin{cases} \cos x(2\sin x - 1) > 0 \\ 1-2\sin^2 x > 0 \end{cases} \quad (1) \begin{cases} \cos x > 0 \\ 2\sin x - 1 > 0 \\ 1-2\sin^2 x > 0 \end{cases} \begin{matrix} N \\ \\ D \end{matrix} \quad \text{o} \quad (2) \begin{cases} \cos x < 0 \\ 2\sin x - 1 < 0 \\ 1-2\sin^2 x < 0 \end{cases} \begin{matrix} N \\ \\ D \end{matrix}$$

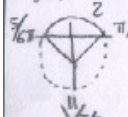
Numeratore

$\cos x > 0$



$\Downarrow$ V

$\sin > \frac{1}{2}$



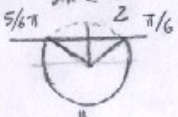
$\Downarrow$

$\pi/6 < x < \pi/2$

$\cos x < 0$

$\Downarrow$ V

$\sin < \frac{1}{2}$



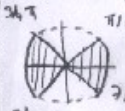
$\Downarrow$

$5/6\pi < x < 3/2\pi$

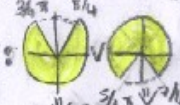
Denominatore

$a<0$ $b \geq 0$ $\Delta > 0$ x valori interni all'intervallo $\Rightarrow \sin x > \pm\sqrt{2}/2$ V

$\sin x < \pm\sqrt{2}/2$ $\left(\pi/4;\ 3/4\pi;\ 5/4\pi;\ \frac{7}{4}\pi\right)$



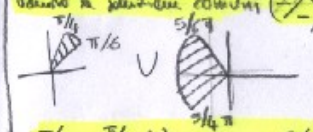
o:



$\Downarrow$ $\sin x < \sqrt{2}/2$ $\qquad$ $\Downarrow$ $\sin x > -\sqrt{2}/2$

Mettendo la soluzione e cambiando segno $\sin x < \sqrt{2}/2$ e $\sin x > -\sqrt{2}/2$

Facendo le soluzioni comuni $(+/-) \times (+/+)$



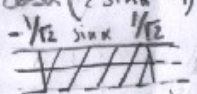
R: $\pi/6 < x < \pi/4 \ \cup\ 5/6\pi < x < 5/4\pi$

$$\frac{\sin 2x - \cos x}{\sqrt{1-2\sin^2 x}} > 0 \quad \begin{cases} \sin 2x - \cos x > 0 \\ \sqrt{1-2\sin^2 x} > 0 \\ \sqrt{1-2\sin^2 x} \neq 0 \end{cases} \quad \begin{cases} 2\sin x\cos x - \cos x > 0 \\ \sin x \leq \pm\frac{1}{\sqrt{2}} \ (\pi/4) \\ \sin x \neq \pm\frac{1}{\sqrt{2}} \ (\pi - \pi/4) \end{cases}$$

$\boxed{\text{N.B. } 1/\sqrt{2} \cdot \sqrt{2}/\sqrt{2} = \sqrt{2}/2}$

$\begin{cases} \text{non potendo dividere x } \cos(x) \text{ in quanto non sappiamo se} > \text{o} \\ < \text{di } 0 \Rightarrow \cos x(2\sin x - 1) > 0 \\ \sin x < \pm 1/2 \end{cases}$

$\hookrightarrow \left\{ \begin{matrix} a>0 \\ a<0 \\ \Delta>0 \end{matrix} \right\}$ intervalli interni



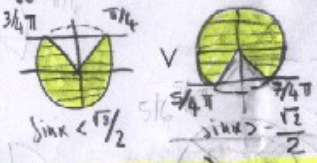
$\Rightarrow$ (1) $\cos x \geq 0$ $(\pi/2;\ 3/2\pi)$

(2) $\sin x \geq 1/2$ $(\pi/6;\ 5/6\pi)$

(3) $\frac{\sqrt{2}}{2} < \sin x < \frac{\sqrt{2}}{2}$ $\left(\frac{\pi}{4};\ \frac{3}{4}\pi\right)$ e $\left(5/4\pi;\ 7/4\pi\right)$

« PROCEDIMENTO BREVE »

Alla rappresentazione grafica n°3 si può arrivare anche con:

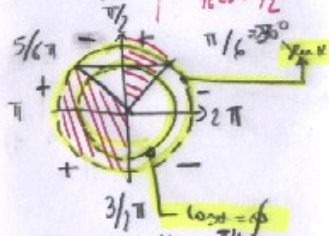


$\sin x < \sqrt{2}/2$ $\qquad$ $\sin x > -\frac{\sqrt{2}}{2}$ $\qquad$ (*)

Rappresentazione grafica (1+2) V Rappresentazione grafica (3)

(1 + 2) N.B Poiché $-/- = + = +/+ = +$ considero le soluzioni comuni sia (+) che (−)

$\Downarrow$



$\pi/6 < x < \pi/2$

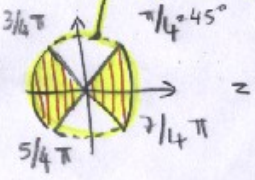
$\sin x = +\frac{1}{2}$

$\cos x = \phi$

V

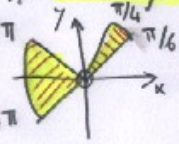
(3) (*) $\Downarrow$

$\sin x \leq \pm\sqrt{2}/2$



$\pi/4 = 45°$

=



$\Rightarrow R \Rightarrow \begin{cases} \pi/6 + 2k\pi < x < \pi/4 + 2k\pi \\ 5/6\pi + 2k\pi < x < 5/4\pi + 2k\pi \end{cases}$