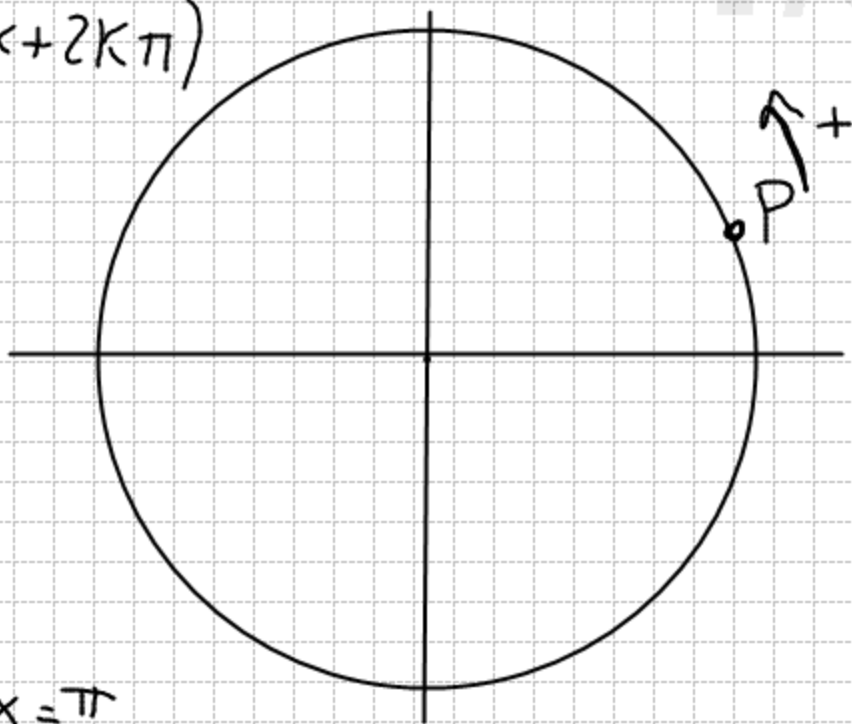


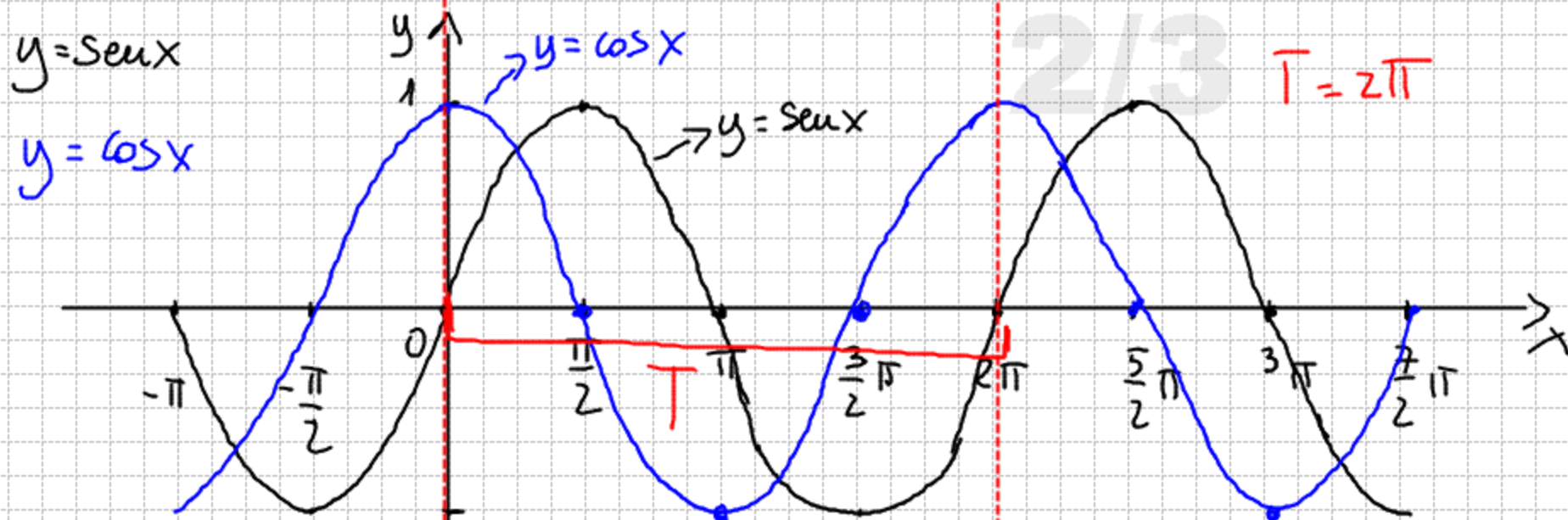
$$\begin{aligned} \operatorname{sen} x &= \operatorname{sen}(x + 2k\pi) & k \in \mathbb{N} \\ \cos x &= \cos(x + 2k\pi) \end{aligned}$$



se  $k=1$  e  $x=\frac{\pi}{2}$

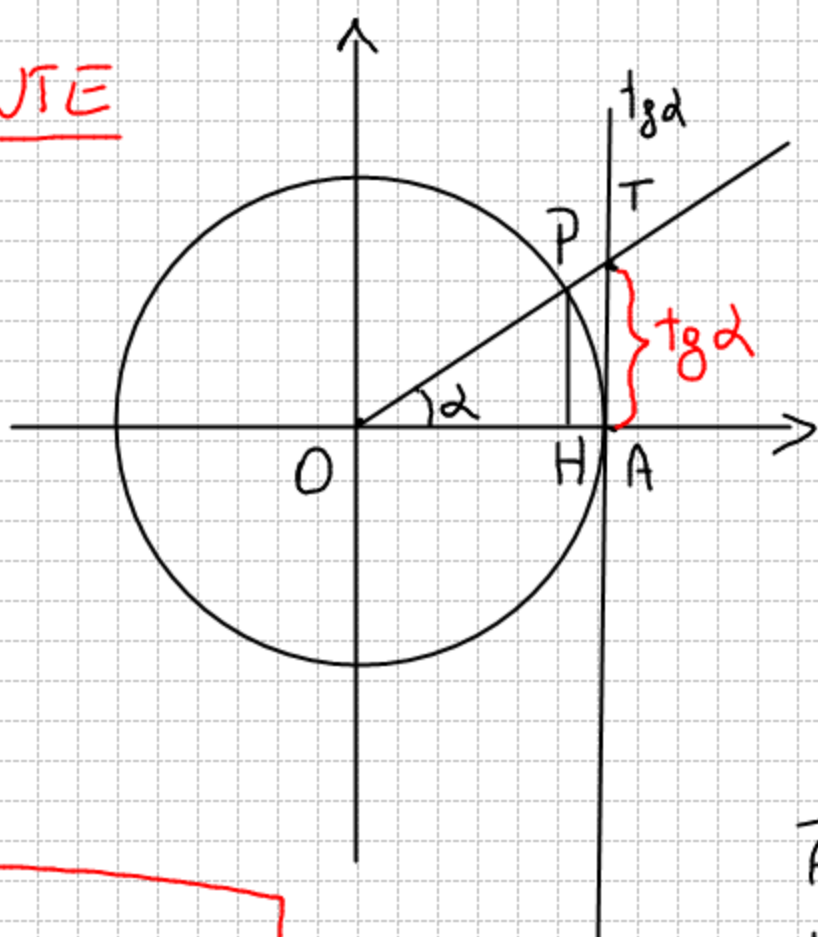
$$\operatorname{sen}\left(\frac{\pi}{2} + 2\pi\right) = \operatorname{sen}\frac{5}{2}\pi = 1$$

# GRAFICO FUNZIONE SENO DI X E FUNZIONE COSENO DI X



x	y	y
0	0	1
$\frac{\pi}{2}$	1	0
$\pi$	0	-1
$\frac{3\pi}{2}$	-1	0
$2\pi$	0	1

# TANGENTE



$$\triangle OHP \cong \triangle OAT$$

$$\overline{PH} = \text{sen } \alpha$$

$$\overline{OH} = \text{cos } \alpha$$

$$\overline{OA} = 1$$

$$\overline{AT} = \text{Tg } \alpha$$

$$\overline{AT} : \overline{OA} = \overline{HP} : \overline{OH}$$

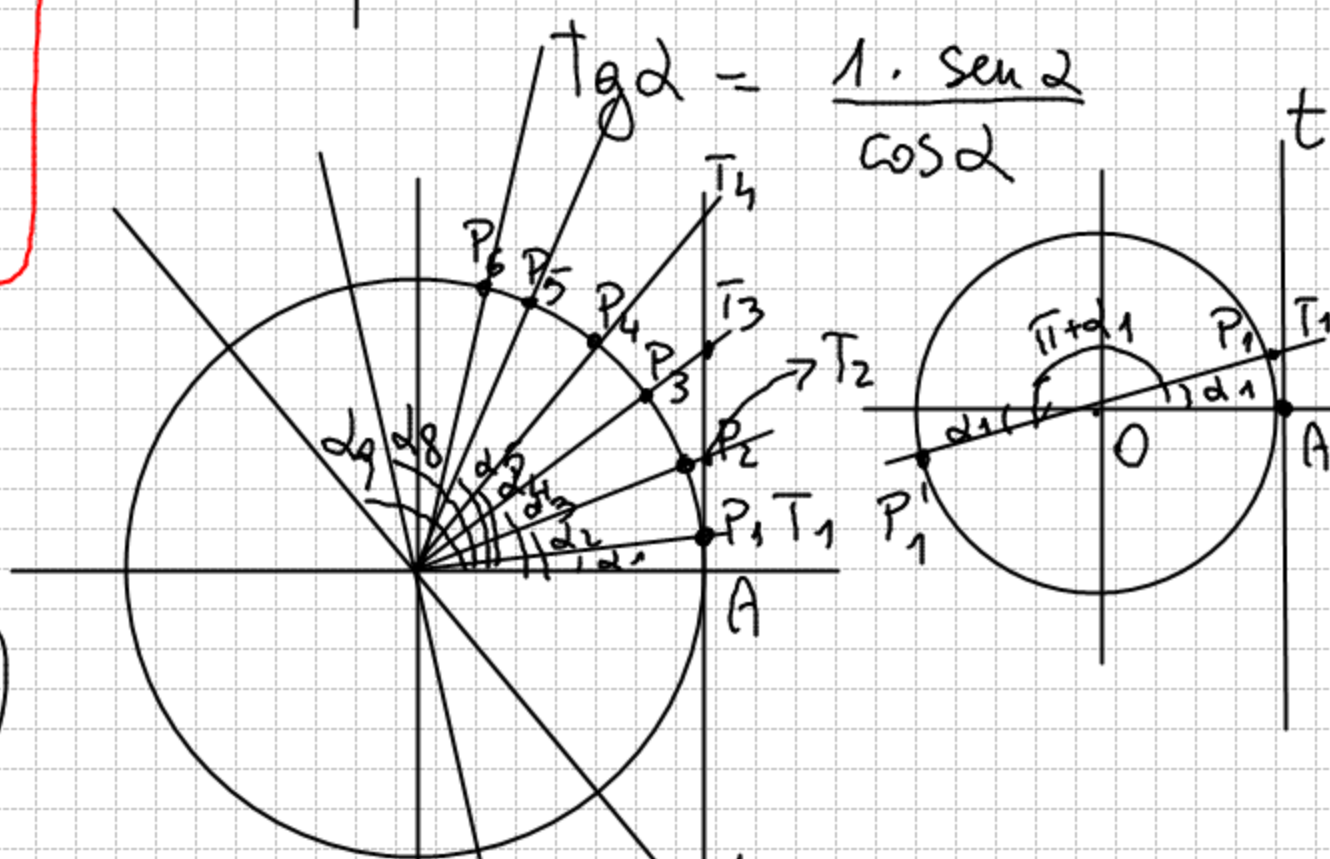
$$\text{Tg } \alpha = \frac{\text{Sen } \alpha}{\text{Cos } \alpha}$$

$$\text{Tg } \alpha = \frac{1 \cdot \text{Sen } \alpha}{\text{Cos } \alpha}$$

$$\overline{T} = \overline{\Pi}$$

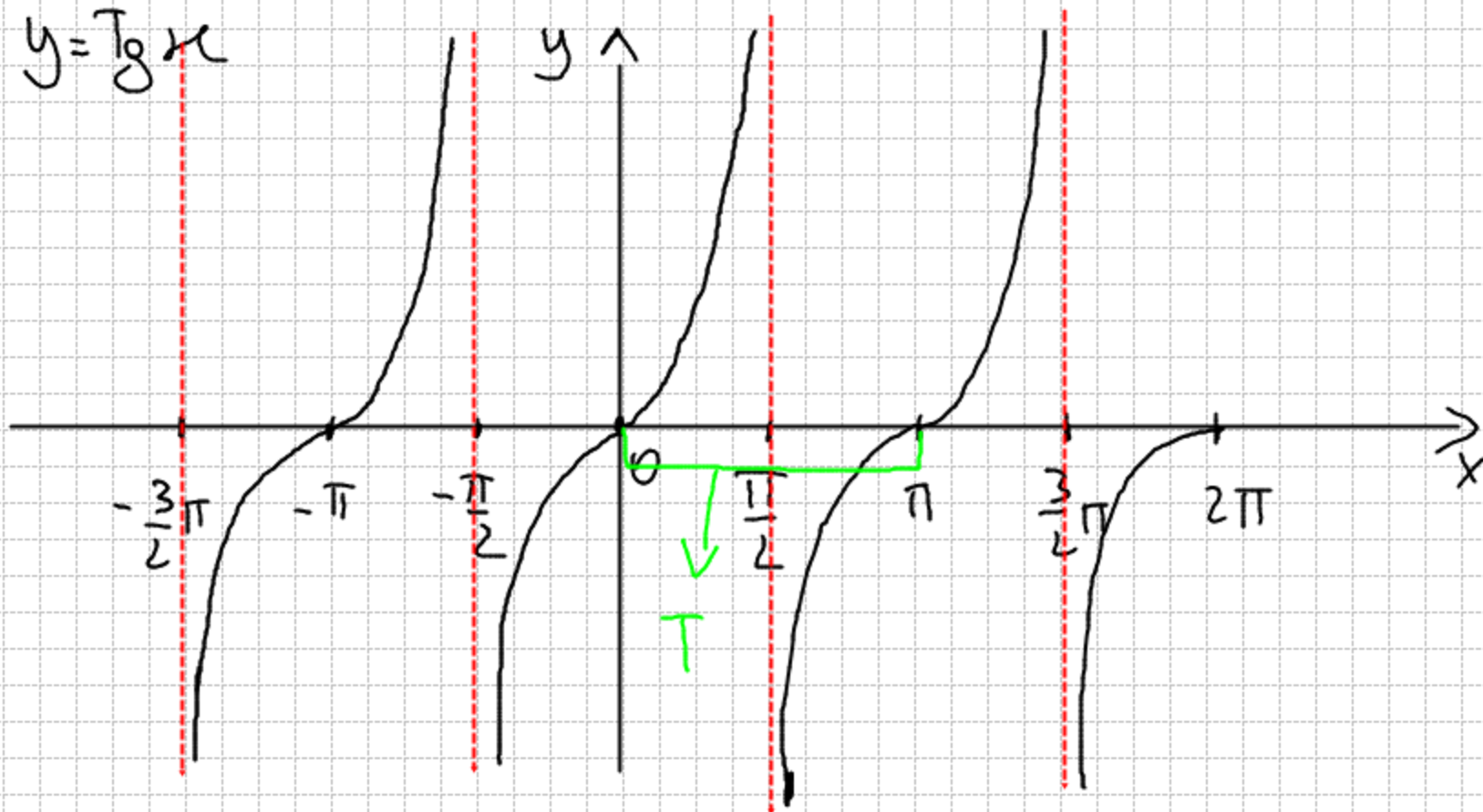
$$\text{Tg } \alpha = \text{Tg}(\alpha + k\pi)$$

$$k \in \mathbb{N}(\mathbb{Z})$$



$\alpha$	$0^+$	$\nearrow$	$\frac{\pi}{2}^-$	$\frac{\pi}{2}^+$	$\pi^-$	$\pi^+$	$\frac{3\pi}{2}^-$	$\frac{3\pi}{2}^+$	$2\pi^-$
$\text{Tg } \alpha$	$0^+$	$\nearrow$	$+\infty$	$-\infty$	$0^-$	$0^+$	$+\infty$	$-\infty$	$0^-$

$$y = \text{Tg } x$$



$$\lim_{x \rightarrow \frac{\pi}{2}^-} \text{Tg } x = +\infty$$

$$\lim_{x \rightarrow \frac{\pi}{2}^+} \text{Tg } x = -\infty$$

$$\lim_{x \rightarrow \frac{3\pi}{2}^-} \text{Tg } x = +\infty$$

$$\lim_{x \rightarrow \frac{3\pi}{2}^+} \text{Tg } x = -\infty$$