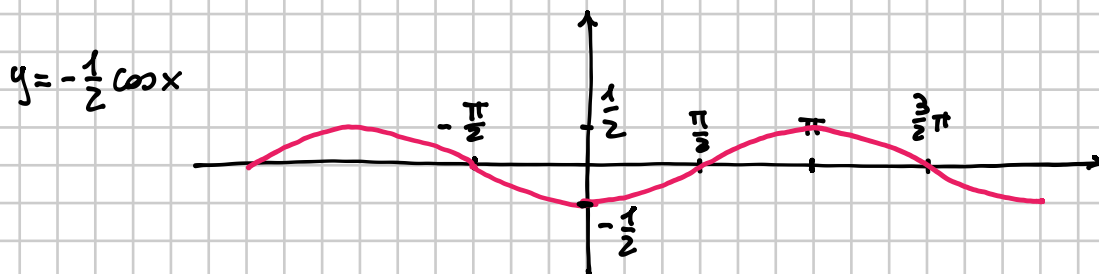
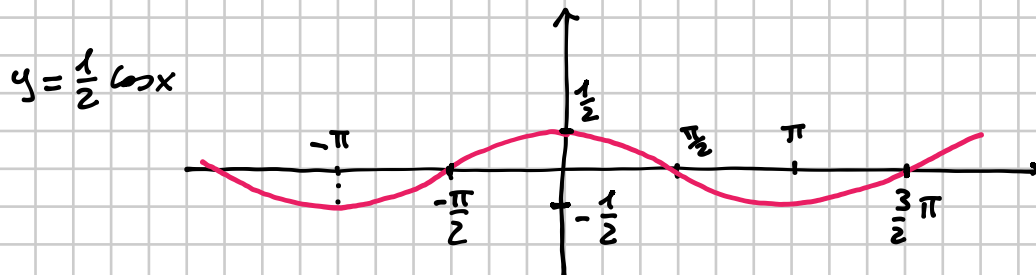
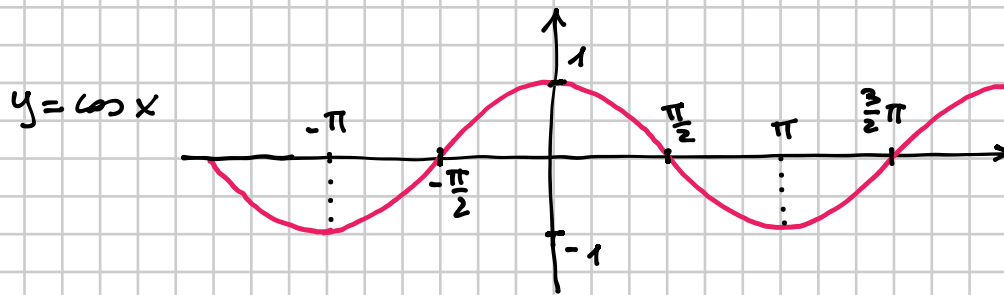


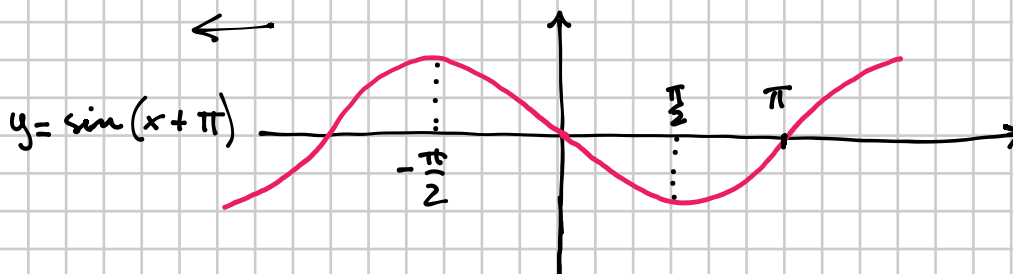
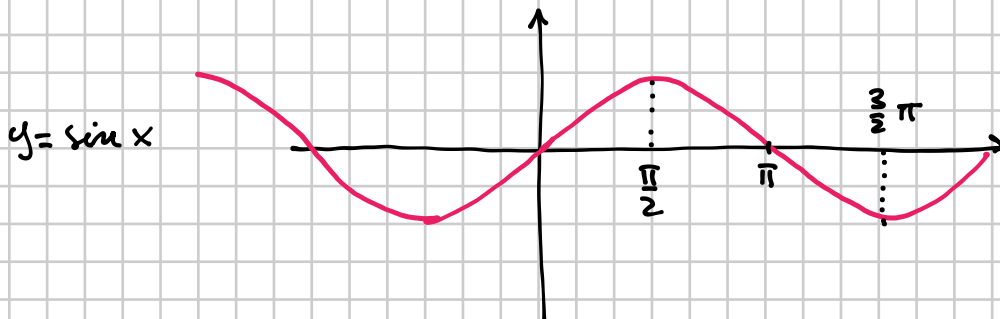
N°137  $y = -\frac{1}{2} \cos x$



VALORE MAX =  $\frac{1}{2}$

VALORE MIN =  $-\frac{1}{2}$

138  $y = \sin(x + \pi)$

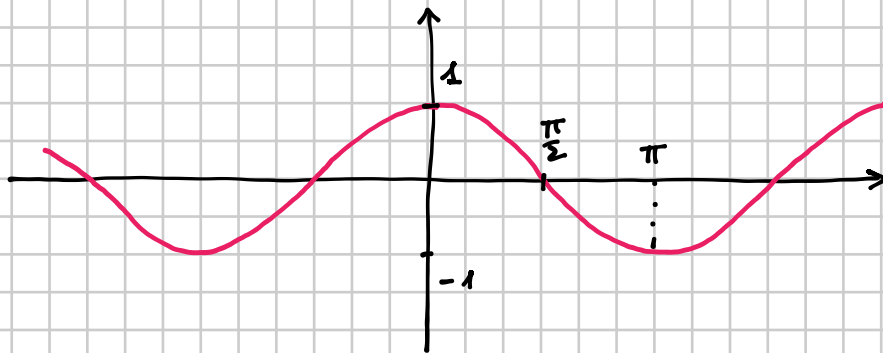


VALORE MAX = 1

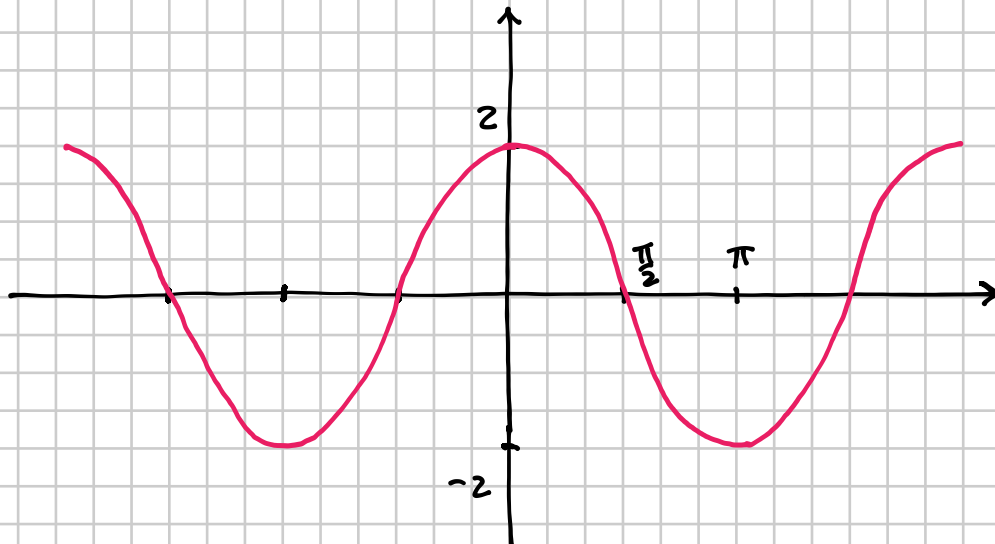
VALORE MIN = -1

139  $y = 1 + 2\cos x$

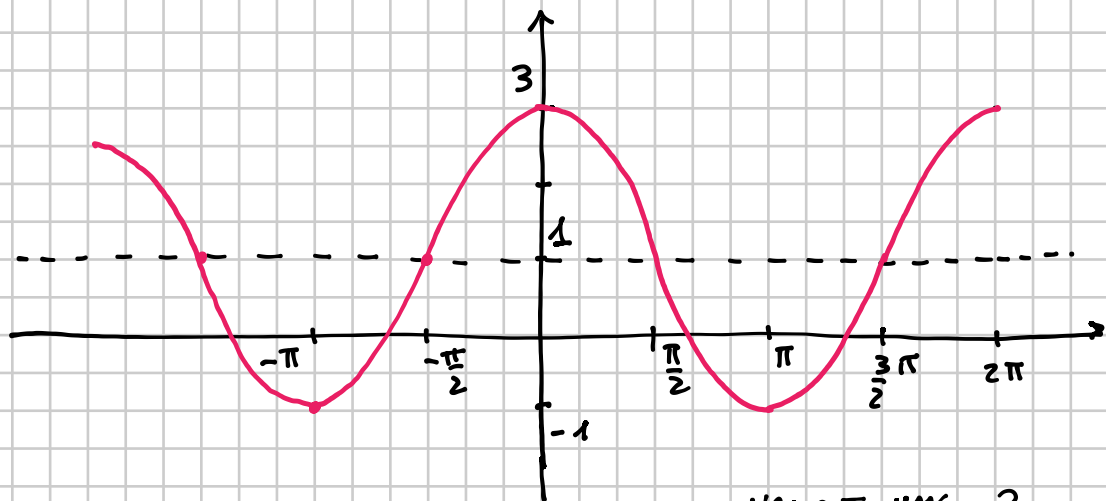
$y = \cos x$



$y = 2\cos x$



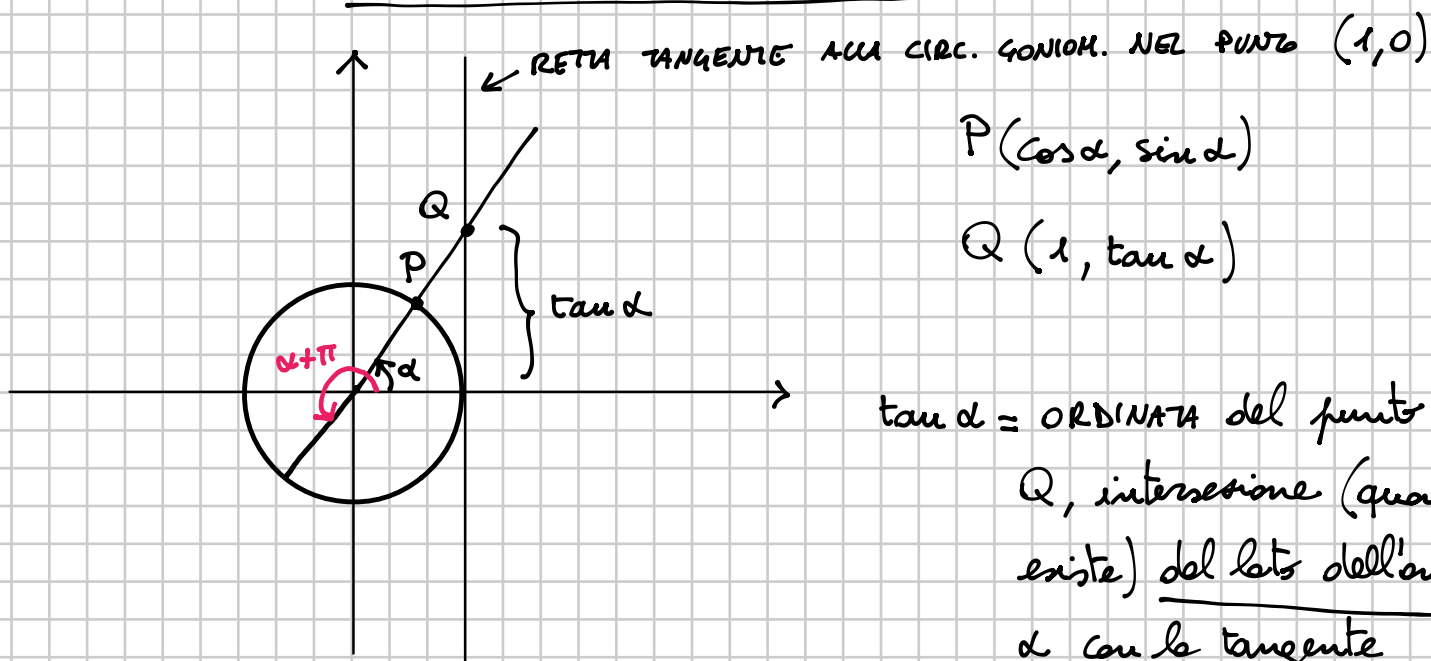
$y = 2\cos x + 1$



VALUE MAX = 3

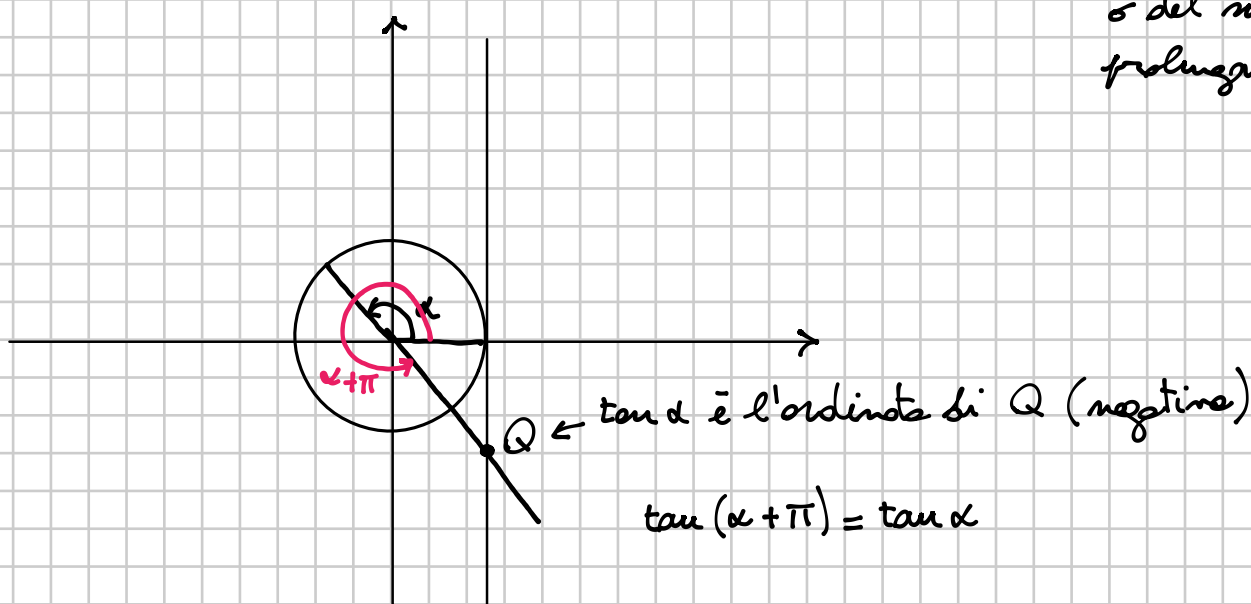
VALUE MIN = -1

# TANGENTE DI UN ANGOLO



$\tan \alpha =$  ORDINATA del punto  $Q$ , intersezione (quando esiste) del lato dell'angolo  $\alpha$  con la tangente geometrica in  $(1,0)$ .

o del suo prolungamento

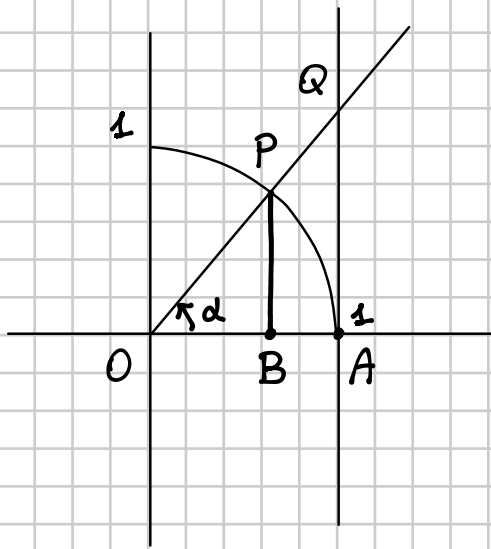


La tangente non esiste per  $\alpha = \frac{\pi}{2}$  e  $\alpha = \frac{3}{2}\pi$  (più mezzi giri).  
In altre parole il DOMINIO della funzione tangente è

$$D = \left\{ x \in \mathbb{R} \mid x \neq \frac{\pi}{2} + K\pi, K \in \mathbb{Z} \right\}$$

La tangente è PERIODICA di periodo  $\pi$

$$\tan(x + K\pi) = \tan x \quad \forall x \neq \frac{\pi}{2} + K\pi$$



$$\overline{OA} = 1$$

$$\overline{OB} = \cos \alpha$$

$$\overline{PB} = \sin \alpha$$

$$\overline{QA} = \tan \alpha$$

Per similitudine dei  
triangoli OBP e OAQ

$$1 : \overline{QA} = \overline{OB} : \overline{PB}$$

$$1 : \tan \alpha = \cos \alpha : \sin \alpha$$

⇓

2<sup>a</sup> REL.  
FONDAMENTALE  
DELLA  
GONIOMETRIA

$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha}$$

$\cos \alpha = 0$  proibito

in  $\alpha = \frac{\pi}{2} + k\pi$ , cioè

dove  $\tan \alpha$  non esiste