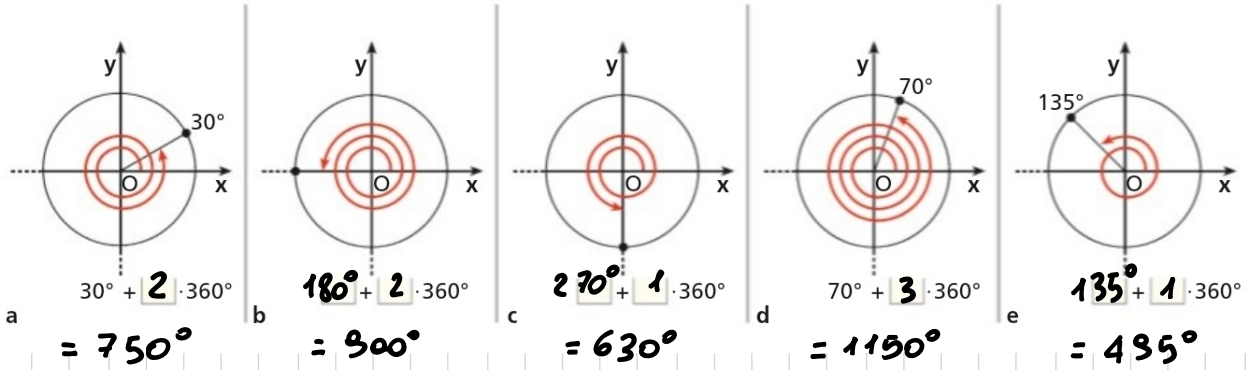
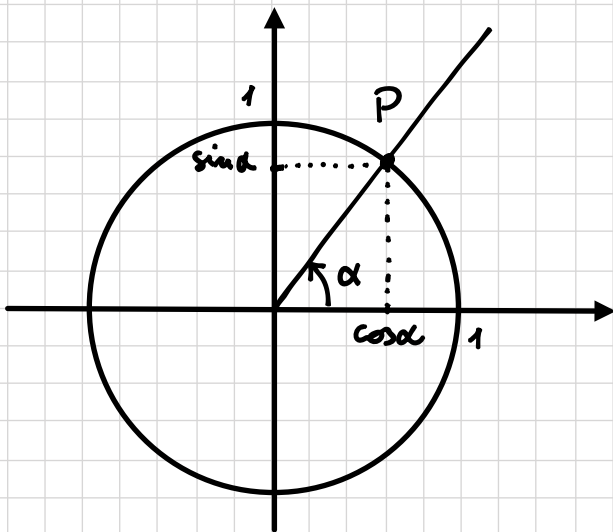


67 **COMPLETA** scrivendo in forma sintetica gli angoli rappresentati in figura.



FUNZIONI GONIOMETRICHE

CIRCONFERENZA GONIOMETRICA $x^2 + y^2 = 1$



COSENO DI $\alpha \rightarrow \cos \alpha = \text{ASCISSA DI P}$

SENO DI $\alpha \rightarrow \sin \alpha = \text{ORDINATA DI P}$

$P(\cos \alpha, \sin \alpha)$

\Downarrow

$$\cos^2 \alpha + \sin^2 \alpha = 1$$

$\alpha = \text{angolo orientato generalizzato}$
(in gradi e radianti)

1° RELAZIONE FONDAMENTALE
DELLA GONIOMETRIA

COSENO E SENNO DI ANGOLI PARTICOLARI

ANGOLO α		$\cos \alpha$	$\sin \alpha$
GRADI	RADIANTI		
0°	0	1	0
90°	$\frac{\pi}{2}$	0	1
180°	π	-1	0
270°	$\frac{3}{2}\pi$	0	-1
360°	2π	1	0

$$\cos 0^\circ = \cos 0 = 1$$

$$\sin 0^\circ = \sin 0 = 0$$

$$\cos 90^\circ = \cos \frac{\pi}{2} = 0$$

$$\sin 90^\circ = \sin \frac{\pi}{2} = 1$$

Si intuisce che \sin e \cos sono PERIODICHE di periodo 360° o 2π



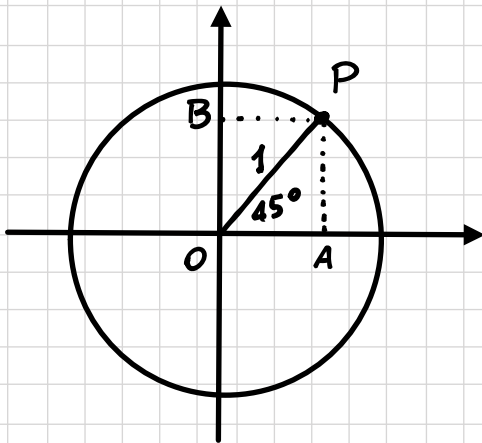
$$\cos(\alpha + k \cdot 360^\circ) = \cos \alpha$$

$k \in \mathbb{Z}$ e quadranti

$$\sin(\alpha + k \cdot 360^\circ) = \sin \alpha$$

$$[\cos(\alpha + 2k\pi) = \cos \alpha]$$

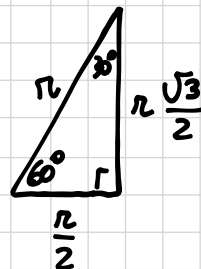
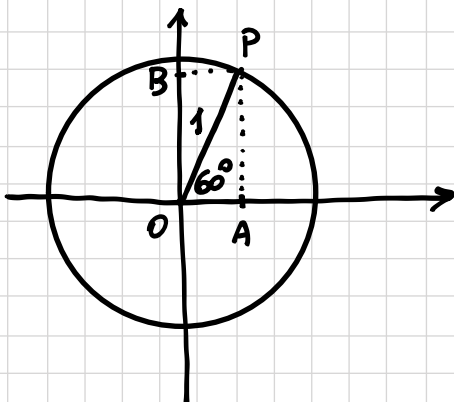
Quanto valgono $\cos 45^\circ$ e $\sin 45^\circ$?



$OAPB$ è un quadrato di diagonale 1 $\Rightarrow \overline{OA} = \overline{OB}$

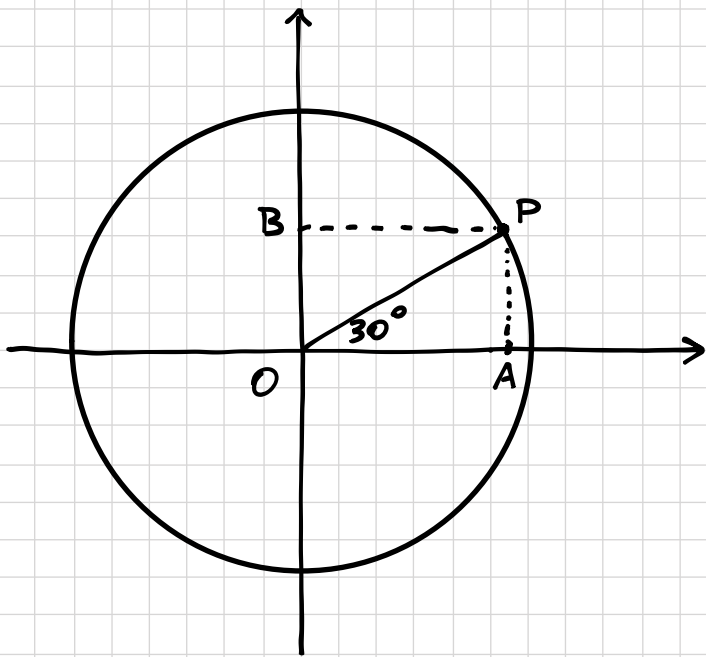
$$\cos 45^\circ = \sin 45^\circ = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\cos \frac{\pi}{4} = \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$



$$\cos 60^\circ = \cos \frac{\pi}{3} = \frac{1}{2}$$

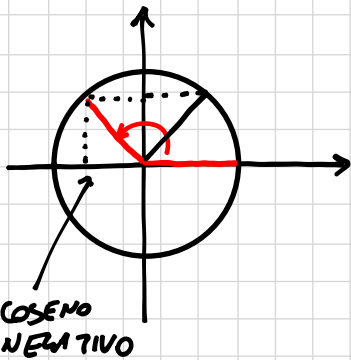
$$\sin 60^\circ = \sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$$



$$\cos 30^\circ = \cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$$

$$\sin 30^\circ = \sin \frac{\pi}{6} = \frac{1}{2}$$

$$\sin 135^\circ = \sin (90^\circ + 45^\circ)$$



$$\sin 135^\circ = \frac{\sqrt{2}}{2} \quad \left(\sin \frac{3}{4} \pi \right)$$

$$\cos 135^\circ = -\frac{\sqrt{2}}{2} \quad \left(\cos \frac{3}{4} \pi \right)$$