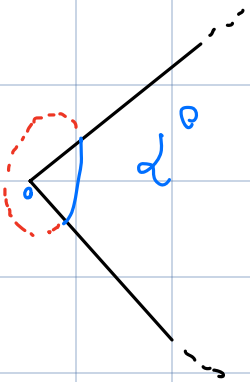# GONIOMETRIA

GONIOMETRIA = STUDIO DELLA MISURA DEGLI ANGOLI

- MISURA ANGOLI
- FUNZIONI GONIOMETRICHE
- FORMULE GONIOMETRICHE
- VALORI NOTI E ANGOLI ASSOCIATI
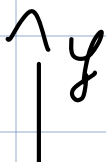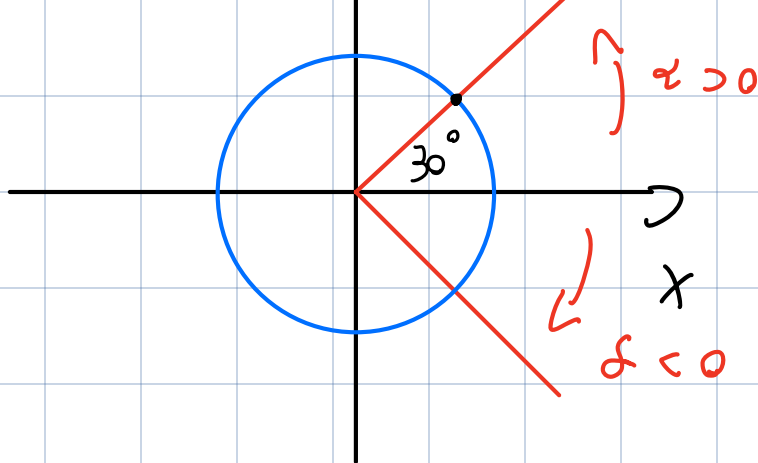
↓ MISURA DEGLI ANGOLI ↓

PORZIONE DI PIANO
DELIMITATA DA 2 SEMI
RETTE

CONVERSO = DENTRO
CONCAVO = FUORI

- ANGOLO NULLO $\alpha = 0°$
- ANGOLO ACUTO $0° < \alpha < 90°$
- ANGOLO RETTO $\alpha = 90°$
- ANGOLO OTTUSO $90° < \alpha < 180°$
- ANGOLO PIATTO $\alpha = 180°$
- ANGOLO GIRO $\alpha = 360°$

↓ FUNZIONI SENO E COSENO ↓

30°

$\gamma > 0$

X

$\delta < 0$

ABBIAMO BISOGNO DI UNA CIRC. PER DESCRIVERE ANGOLI POSITIVI E ANGOLI NEGATIVI.

$\rightarrow \boxed{f(\cdot)} \xrightarrow{y \in \mathbb{R}}$

TUTTE LE FUNZIONI GONIOMETRICHE SONO PERIODICHE (CHE SI RIPETONO UGUALI)

$390° = 30°$

$-30 = 330°$

CIRC. GONIOMETRICA

$C(0,0)$

$r = 1$

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

seno e coseno

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

$$P(x_p ; y_p)$$

Y É IL $\sin \delta$

X É IL $\cos \delta$

$(0,1)$

$(-1; 0)$

y_p

$\sin(\delta)$

P

δ

$\cos \delta$

x_p

$(1;0)$

Q

X

$(0; -1)$
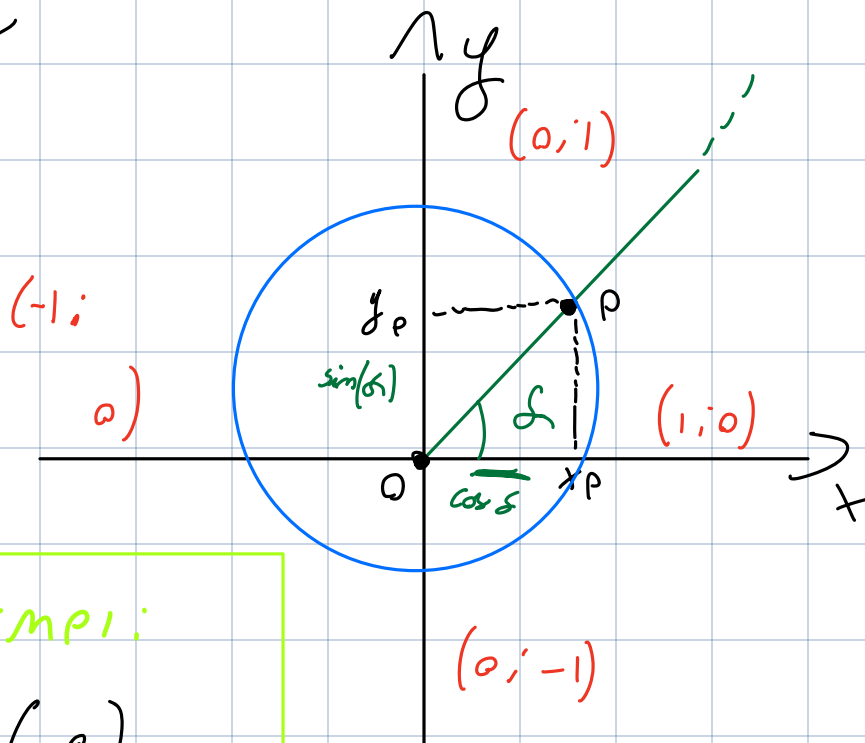
ESEMPI:

$$\sin(0°) = 0$$

$$\sin(90°) = 1$$

$$\sin(180°) = 0$$

↓ ESPRESSIONI GONIOMETRICHE ↓

1) $\frac{1}{2} \cos(540°) + \frac{2}{3} \sin(720°) - \frac{1}{4} \sin(450°) + 6 \sin(-270°)$

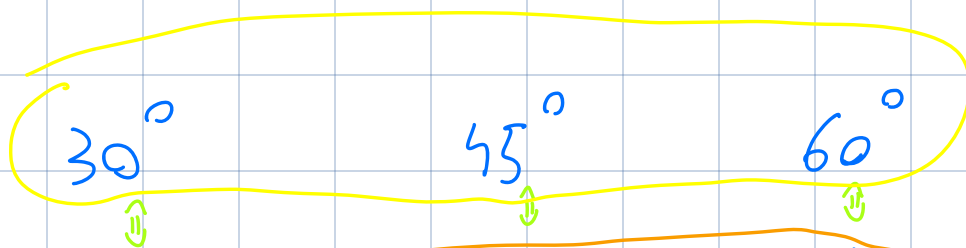$\frac{1}{2} \cos(180°) + \frac{2}{3} \sin(0°) - \frac{1}{4} \sin(90°) + 6 \sin(90°) =$

$= \frac{1}{2}(-1) - \frac{1}{4}(1) + 6 \cdot 1 =$

$= -\frac{1}{2} - \frac{1}{4} + 6 = \frac{-2 - 1 + 24}{4} = \frac{21}{4}$

ESPRESSIONI GONIOMETRICHE CON

ARCHI ASSOCIATI

GRADI: 30°   45°   60°

RADIANTI: $\frac{\pi}{6}$ $\frac{\pi}{4}$ $\frac{\pi}{3}$

$\sin(30°) = ?$ $\sin(45°) = ?$ $\sin(60°) = ?$

$\cos(30°) = ?$ $\cos(45°) = ?$ $\cos(60°) = ?$

$\tan(30°) = ?$ $\tan(45°) = ?$ $\tan(60°) = ?$

$\cot(30°) = ?$ $\cot(45°) = ?$ $\cot(60°) = ?$

$30°$ $\implies$ $\widetilde{\pi}/6$
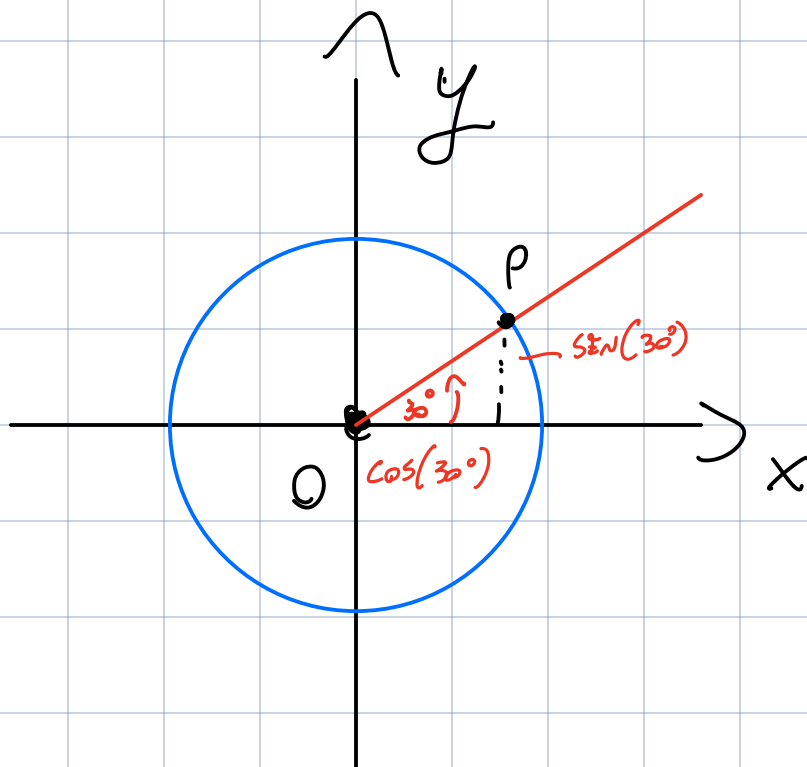
(CIRCONFERENZA GONIOMETRICA UNITARIA)

y

P

SEN(30°)

$30°$

$\cos(30°)$

O

x

1

$\text{SIN}(30°) = \frac{1}{2}$

$30°$

$\cos(30°)$

$\frac{\sqrt{3}}{2} \cdot 1$

$\tan(30°) = \frac{SIN}{COS} = \frac{1/2}{\sqrt{3}/2} =$

$= \frac{1}{2} \cdot \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$