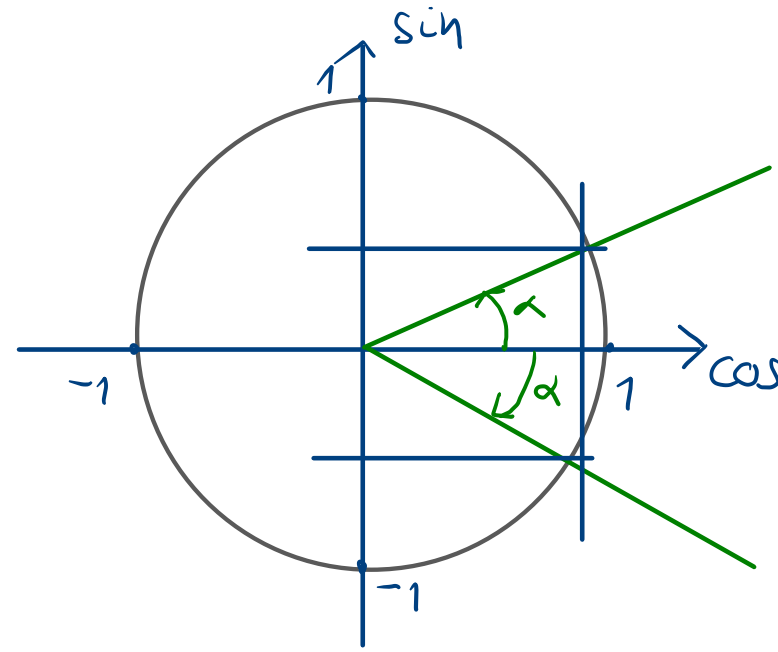
Formule trigo

① $\sin(\alpha + K \cdot 360°) = \sin(\alpha)$ $\quad K \in \mathbb{Z}$

$\cos(\alpha + K \cdot 360°) = \cos(\alpha)$

$K \cdot 360°$: K tours complets



On dit que les fonctions sin et cos sont de période 2π.

② $-1 \leqslant \sin(\alpha) \leqslant 1$

$-1 \leqslant \cos(\alpha) \leqslant 1$

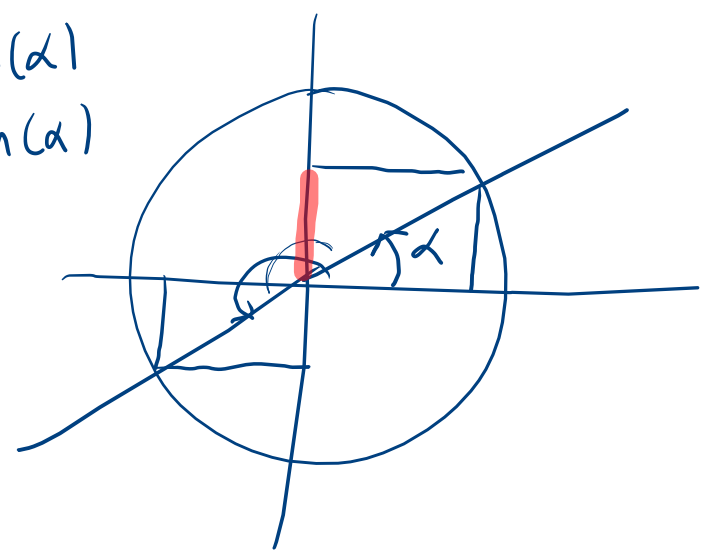
③ $\sin^2(\alpha) + \cos^2(\alpha) = 1$

④ $\cos(-\alpha) = \cos(\alpha)$

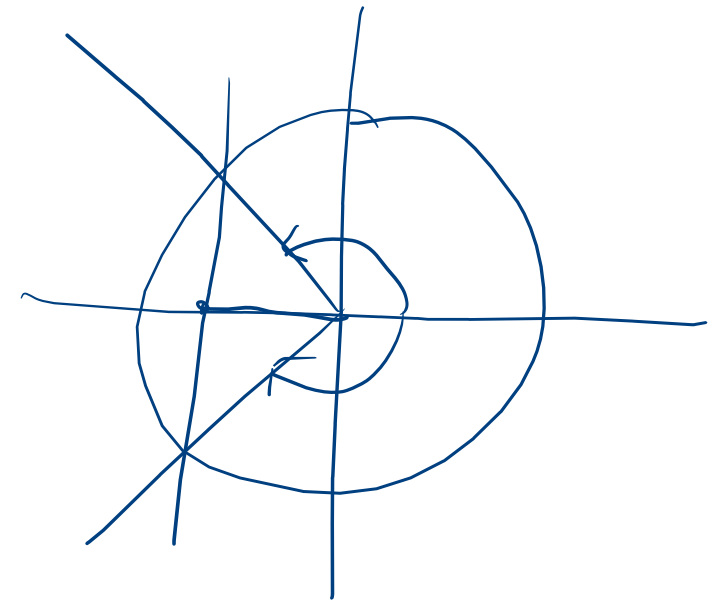
$\sin(-\alpha) = -\sin(\alpha)$

⑤ $\cos(\alpha + 180°) = -\cos(\alpha)$

$\sin(\alpha + 180°) = -\sin(\alpha)$



④



(6) $\cos(180° - \alpha) = -\cos(\alpha)$

$\sin(180° - \alpha) = \sin(\alpha)$

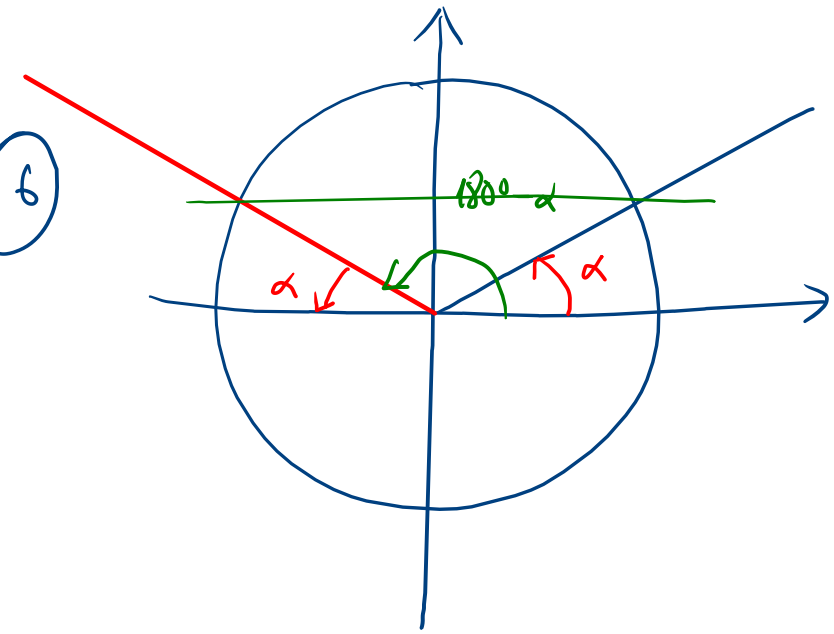
(7) $\cos(90° - \alpha) = \sin(\alpha)$

$\sin(90° - \alpha) = \cos(\alpha)$

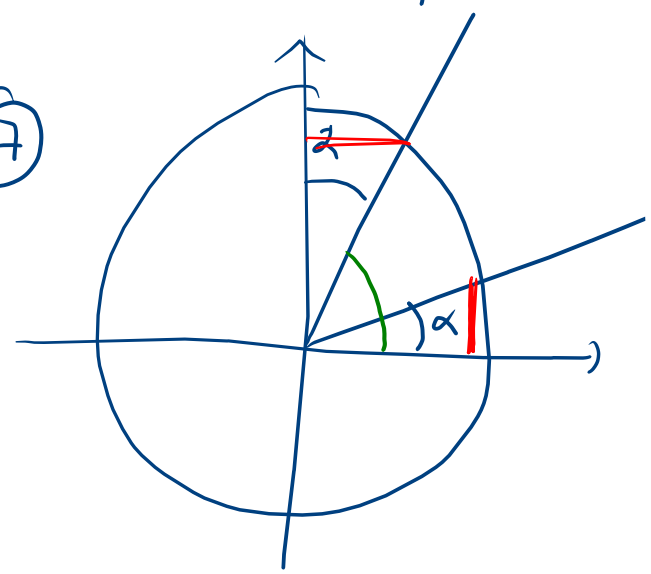
(8) $\cos(90° + \alpha) = -\sin(\alpha)$

$\sin(90° + \alpha) = \cos(\alpha)$

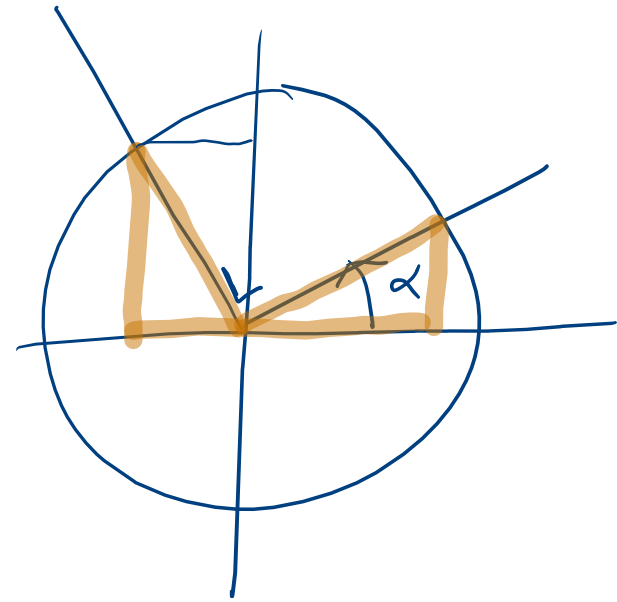
(6)



(7)



(8)



$$\sin(\alpha+\beta) = \sin(\overset{45^\circ}{\alpha})\cos(\overset{30}{\beta}) + \cos(\overset{45^\circ}{\alpha})\sin(\overset{30^\circ}{\beta})$$

$\sin(30^\circ) = \frac{1}{2}$ $\qquad$ $\sin(45^\circ) = \frac{\sqrt{2}}{2}$

$\cos(30^\circ) = \frac{\sqrt{3}}{2}$ $\qquad$ $\cos(45^\circ) = \frac{\sqrt{2}}{2}$

$$\sin(75^\circ) = \sin(45^\circ + 30^\circ)$$

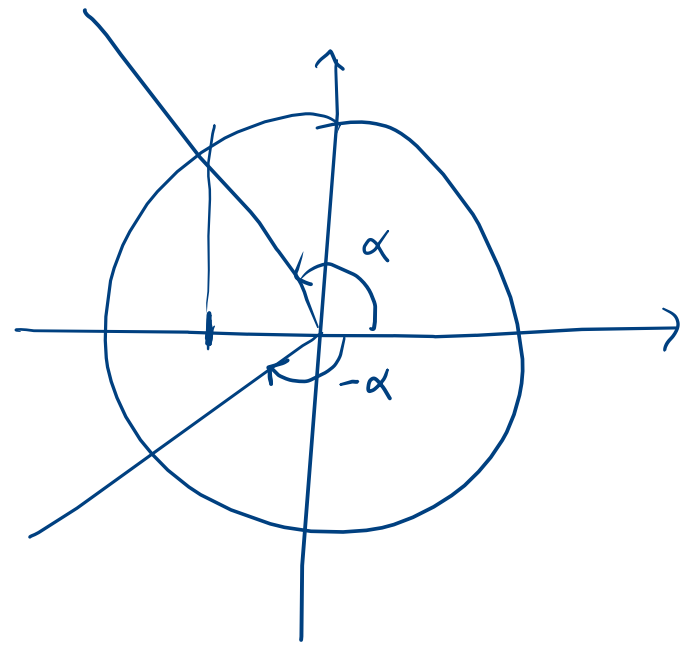
$$= \frac{\sqrt{2}}{2}\cdot\frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2}\cdot\frac{1}{2} = \frac{\sqrt{6}}{4} + \frac{\sqrt{2}}{4} = \frac{\sqrt{6}+\sqrt{2}}{4}$$

4.3.3 Résoudre les équations suivantes en donnant les solutions en degrés.

a) $\cos(t) = -\frac{1}{2}$

b) $\sin(t) = 0.829$

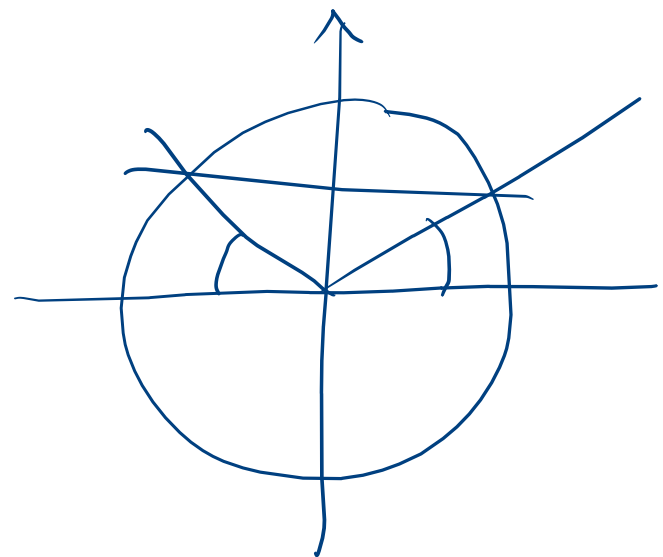
a) $\cos(t) = -\frac{1}{2}$ ⇒ TI $t = 120°$



$$t = \begin{cases} 120° + K \cdot 360° \\ -120° + K \cdot 360° \end{cases} \qquad K \in \mathbb{Z}$$

b) - d) - f) - h)

b) $\sin(t) = 0,829$ ⇒ TI $t \approx 56°$



$$t = \begin{cases} 56° + K \cdot 360° \\ 124° + K \cdot 360° \end{cases}$$