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

e) $\tan(t) = 5.33$

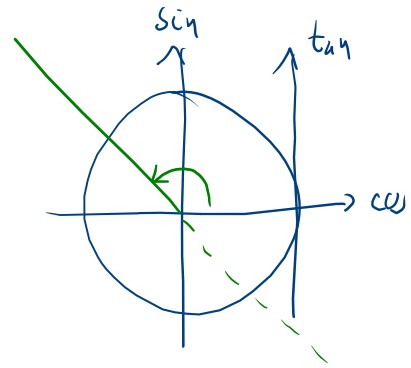
f) $\sin(3\,t) = -\frac{\sqrt{3}}{2}$

g) $\tan(5\,t) = 3.273$

h) $\cos\left(\frac{t}{2}\right) = -\frac{1}{2}$

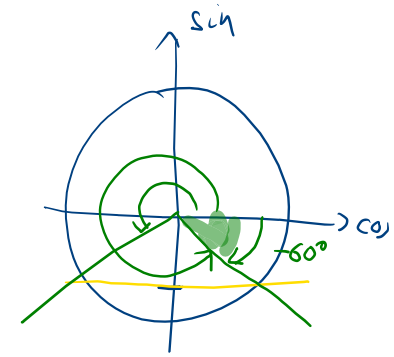
e) $\tan(t) = 5,33$ TI $\Rightarrow$ $t \cong 79,37°$

$t \cong 79,37° + k \cdot 180°$, $k \in \mathbb{Z}$



f) $\sin(3t) = -\frac{\sqrt{3}}{2}$ TI $\Rightarrow$ $3t = -60°$

$$3t = \begin{cases} -60° + k \cdot 360° \\ 240° + k \cdot 360° \end{cases} \quad k \in \mathbb{Z}$$

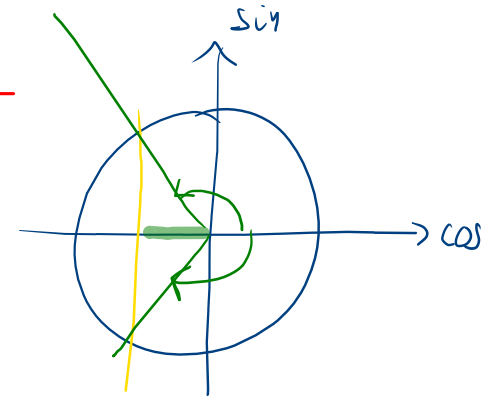


$$t = \begin{cases} -20° + k \cdot 120° \\ 80° + k \cdot 120° \end{cases}, \quad k \in \mathbb{Z}$$

$180° - (-60°) = 240°$

g) TI $\Rightarrow$ $5t \cong 73,01°$ $\Rightarrow$ $5t \cong 73,01° + k \cdot 180°$

$t \cong 14,60° + k \cdot 36°$, $k \in \mathbb{Z}$



h) $\cos\left(\frac{t}{2}\right) = -\frac{1}{2}$ TI $\Rightarrow$ $\frac{t}{2} = 120°$

$$\frac{t}{2} = \begin{cases} 120° + k \cdot 360° \\ -120° + k \cdot 360° \end{cases} \quad k \in \mathbb{Z}$$

$$t = \begin{cases} 240° + 2k \cdot 360° \\ -240° + 2k \cdot 360° \end{cases}, \quad k \in \mathbb{Z}$$

4.3.4 Résoudre les équations suivantes en donnant les solutions en radians.

a) $\sin\left(\frac{2t}{3}+\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}$ $\Rightarrow \frac{2t}{3}+\frac{\pi}{4}=45°=\frac{\pi}{4}$ valeur exacte

① $\frac{2t}{3}+\frac{\pi}{4}=\frac{\pi}{4}+k\cdot 2\pi \quad \left|-\frac{\pi}{4}\right.$

$\frac{2t}{3}=k\cdot 2\pi \quad \left|\cdot\frac{3}{2}\right.$

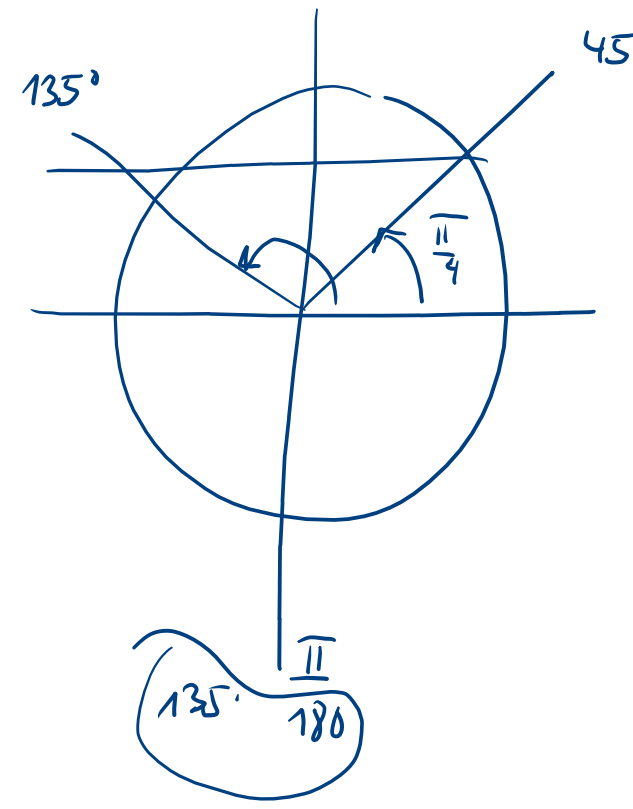
$t=k\cdot 3\pi$

② $\frac{2t}{3}+\frac{\pi}{4}=\frac{3\pi}{4}+k\cdot 2\pi \quad \left|-\frac{\pi}{4}\right.$

$\frac{2t}{3}=\frac{\pi}{2}+k\cdot 2\pi \quad \left|\cdot\frac{3}{2}\right.$

$t=\frac{3\pi}{4}+k\cdot 3\pi$

$t=\begin{cases} k\cdot 3\pi \\ \frac{3\pi}{4}+k\cdot 3\pi \end{cases}, k\in\mathbb{Z}$



c) $\sin(3t) = \sin(2t)$

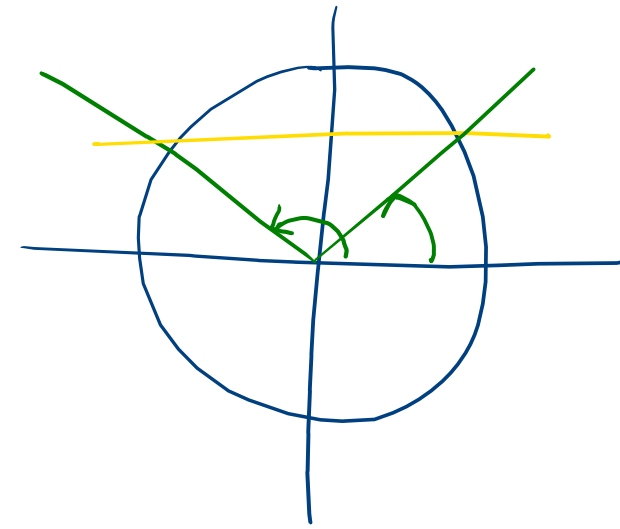
① $3t = 2t + k \cdot 2\pi \quad | -2t$

$t = k \cdot 2\pi$

② $3t = \pi - 2t + k \cdot 2\pi \quad | +2t$

$5t = \pi + k \cdot 2\pi \quad | \div 5$

$t = \frac{\pi}{5} + k \frac{2\pi}{5}$



$$t = \begin{cases} k \cdot 2\pi \\ \frac{\pi}{5} + k \cdot \frac{2\pi}{5} \end{cases}, \quad k \in \mathbb{Z}$$