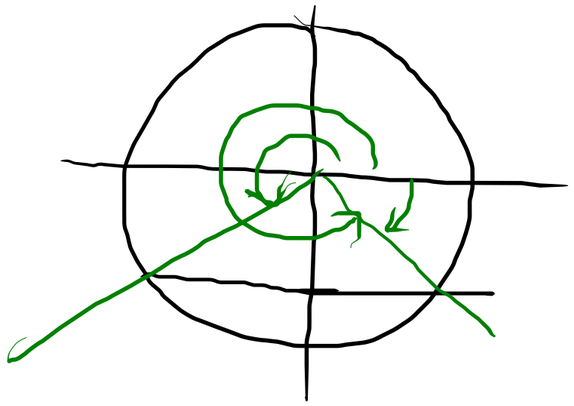
06.03.19

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



$\boxed{\text{TI}}$ $3t = -60°$

$3t = -60° + k \cdot 360°$ ou $3t = 240° + k \cdot 360°$

$t = -20° + k\,120°$ ou $t = 80° + k\,120°$

Les solutions entre 0° et 360°

80°, 100°, 200°, 220°, 320°, 340°

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

a) $\sin\left(\frac{2t}{3}+\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}$

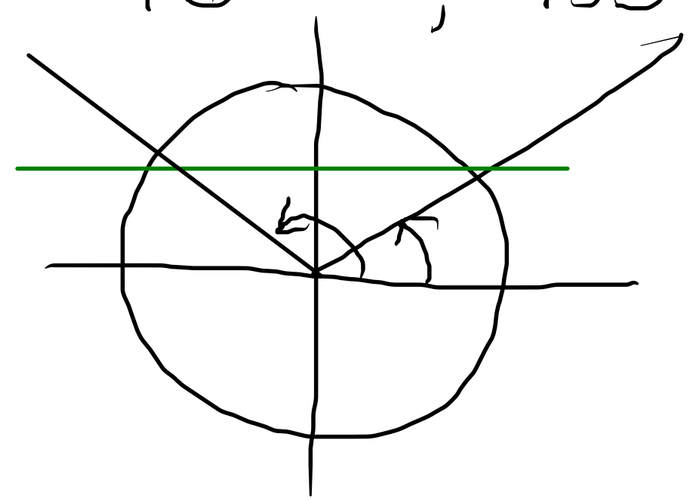
e) $\sin(2t)=\cos\left(3t+\frac{\pi}{4}\right)$

$$\sin\left(\frac{2t}{3}+\frac{\pi}{4}\right)=\frac{\sqrt{2}}{2}$$

$\boxed{\text{TI}}$

Form

45° ; 135°



$$\frac{2t}{3}+\cancel{\frac{\pi}{4}}=\cancel{\frac{\pi}{4}}+k\cdot 2\pi$$

$$\frac{2t}{3}=k\cdot 2\pi$$

$$t=k\cdot 3\pi$$

$$t=3k\pi$$

ou

$$\frac{2t}{3}+\frac{\pi}{4}=\frac{3\pi}{4}+k\cdot 2\pi$$

$$\frac{2t}{3}=\frac{\pi}{2}+k\cdot 2\pi$$

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

f) $\sin\left(\frac{4t}{3}\right) + \cos\left(\frac{t}{2}\right) = 0$

$$\sin\left(\frac{4t}{3}\right) = -\cos\left(\frac{t}{2}\right) \qquad -\cos(\alpha) = \cos(\pi+\alpha)$$

$$\sin\left(\frac{4t}{3}\right) = \cos\left(\frac{t}{2}+\pi\right) \qquad \sin(\alpha) = \cos\left(\frac{\pi}{2}-\alpha\right)$$

$$\cos\left(\frac{\pi}{2}-\frac{4t}{3}\right) = \cos\left(\frac{t}{2}+\pi\right)$$

Deux angles qui ont même cosinus sont soit égaux soit opposés

$$\frac{\pi}{2}-\frac{4t}{3} = \frac{t}{2}+\pi + K2\pi$$

$$-\frac{4t}{3}-\frac{t}{2} = -\frac{\pi}{2}+\pi + K2\pi$$

$$-\frac{11t}{6} = \frac{\pi}{2} + K\,2\pi$$

$$t = -\frac{\cancel{6}^{3}\pi}{\cancel{22}_{11}} - K\frac{12\pi}{11}$$

$$\boxed{t = \frac{-3\pi}{11} + K\frac{12\pi}{11}}$$

ou

$$\frac{\pi}{2}-\frac{4t}{3} = -\left(\frac{t}{2}+\pi\right) + K\cdot 2\pi$$

$$\frac{\pi}{2}-\frac{4t}{3} = -\frac{t}{2}-\pi + K\,2\pi$$

$$-\frac{4t}{3}+\frac{t}{2} = -\frac{\pi}{2}-\pi + K2\pi$$

$$-\frac{5t}{6} = -\frac{3\pi}{2} + K\cdot 2\pi$$

$$t = +\frac{18\pi}{10} + K\frac{12\pi}{5}$$

$$\boxed{t = \frac{9\pi}{5} + K\frac{12\pi}{5}}$$

$$t = \frac{-3\pi}{5} + K\frac{12\pi}{5} \qquad \boxed{K=-1}$$