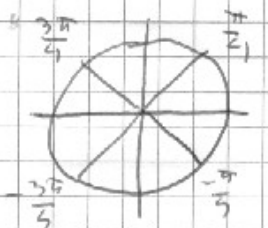
DM n° 9

Ex 1 :

a) $4t = 3\pi \ (2\pi)$

$t = \frac{3\pi}{4} \ (\frac{\pi}{2})$

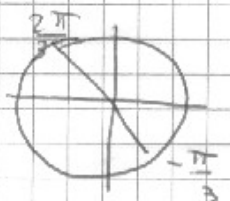


$S = \left\{ \frac{3\pi}{4} ; \frac{\pi}{4} ; -\frac{3\pi}{4} ; -\frac{\pi}{4} \right\}$

b) $3t + \frac{\pi}{6} = t - \frac{\pi}{2} \ (2\pi)$

$2t = -\frac{4\pi}{6} \ (2\pi)$

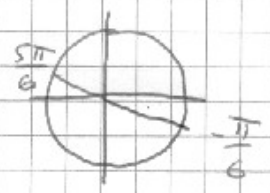
$t = -\frac{\pi}{3} \ (\pi)$



$S = \left\{ -\frac{\pi}{3} ; \frac{2\pi}{3} \right\}$ (3 x 1,5)

c) $-2t - \frac{\pi}{3} = -3t - \frac{\pi}{2} \ (\pi)$

$t = -\frac{\pi}{6} \ (\pi)$



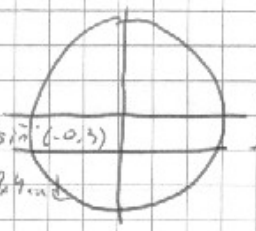
$S = \left\{ \frac{\pi}{6} ; \frac{5\pi}{6} \right\}$

Ex 2

1. $\sin x = -\frac{1}{2} \Rightarrow S = \left\{ -\frac{\pi}{6} ; -\frac{5\pi}{6} \right\}$ (1)

2. $\cos x = -\frac{\sqrt{2}}{2} \Rightarrow S = \left\{ \frac{3\pi}{4} ; -\frac{3\pi}{4} \right\}$ (1)

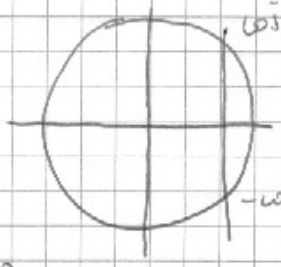
3. $\sin x = -0,3$



$\sin^{-1}(-0,3) \approx -0,30$ rad

$S = \{ -0,30 ; -2,84 \}$ (1,5)

4. $\cos x = 0,8$



$S = \{ 0,64 ; -0,64 \}$ (1,5)

Ex 3 :

On pose $X = \sin x$: $-2X^2 + (1+\sqrt{2})X - \frac{\sqrt{2}}{2} = 0$ (1)

$\Delta = (1+\sqrt{2})^2 - 4 \times -2 \times -\frac{\sqrt{2}}{2} = (1-\sqrt{2})^2$ (1)

(On rappelle que $\sqrt{x^2} = |x|$ et donc que $\sqrt{\Delta} = \sqrt{2} - 1$

$X = \dfrac{1+\sqrt{2}-(\sqrt{2}-1)}{4}$ ou $X = \dfrac{1+\sqrt{2}+\sqrt{2}-1}{4}$

$= \dfrac{1}{2}$ $= \dfrac{\sqrt{2}}{2}$ (1)

$\sin x = \dfrac{\sqrt{2}}{2}$ ou $\sin x = \dfrac{1}{2}$ (1)

$S = \left\{ \dfrac{\pi}{4} ; \dfrac{3\pi}{4} ; \dfrac{\pi}{6} ; \dfrac{5\pi}{6} \right\}$ (1)