

Ex 1: $\frac{-11\pi}{3} = \frac{-12\pi + \pi}{3} = -4\pi + \frac{\pi}{3}$ mesure principale $\left(\frac{\pi}{3}\right)$
 95 + 925
 x4

$\frac{33\pi}{4} = \frac{32\pi + \pi}{4} = 8\pi + \frac{\pi}{4} \rightarrow \left(\frac{\pi}{4}\right)$

$\frac{-17\pi}{6} = \frac{-12\pi - 5\pi}{6} = -2\pi - \frac{5\pi}{6} \rightarrow \left(\frac{-5\pi}{6}\right)$

$\frac{-75\pi}{8} = \frac{-80\pi + 5\pi}{8} = -10\pi + \frac{5\pi}{8} \rightarrow \left(\frac{5\pi}{8}\right)$

Ex 2: (A) $\cos(\alpha - \pi) - \sin(\pi - \alpha) + \cos(\pi + \alpha) - \sin(-\alpha)$
 $= -\cos \alpha - \sin \alpha - \cos \alpha - (-\sin \alpha) = \boxed{-2 \cos \alpha}$

(B) $\sin \alpha + \cos\left(\alpha + \frac{\pi}{2}\right) + \cos \alpha - \sin\left(\alpha + \frac{\pi}{2}\right)$
 $= \sin \alpha - \sin \alpha + \cos \alpha - \cos \alpha = 0$

(C) $\sin \frac{3\pi}{8} + \sin \frac{5\pi}{8} + \sin \frac{11\pi}{8} + \sin \frac{13\pi}{8}$
 $= \sin \frac{3\pi}{8} + \sin \frac{5\pi}{8} + \sin\left(\frac{3\pi}{8} + \pi\right) + \sin\left(\frac{5\pi}{8} + \pi\right)$
 $= \sin \frac{3\pi}{8} + \sin \frac{5\pi}{8} - \sin \frac{3\pi}{8} - \sin \frac{5\pi}{8} = 0$

(D) $\cos \frac{\pi}{10} + \cos \frac{2\pi}{5} + \cos \frac{3\pi}{5} + \cos \frac{8\pi}{10}$
 $= \cos \frac{\pi}{10} + \cos \frac{2\pi}{5} + \cos\left(\pi - \frac{2\pi}{5}\right) + \cos\left(\pi - \frac{\pi}{10}\right)$
 $= \cos \frac{\pi}{10} + \cos \frac{2\pi}{5} - \cos \frac{2\pi}{5} - \cos \frac{\pi}{10} = 0$

Ex 3: 1) $\cos x = \frac{1}{2}$ sur $[0; 3\pi[$: $S = \left\{ \frac{\pi}{3}; \frac{5\pi}{3}; \frac{7\pi}{3} \right\}$

2) $\sin x = -\frac{\sqrt{2}}{2}$ sur $] -\pi; \pi]$: $S = \left\{ -\frac{3\pi}{4}; -\frac{\pi}{4} \right\}$

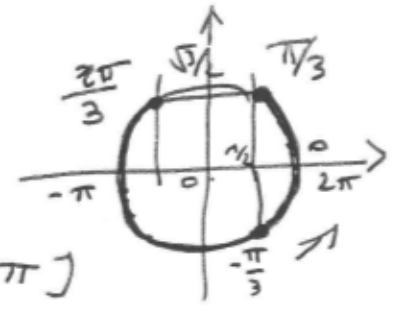
3) $\cos x = \cos \frac{2\pi}{3} \Leftrightarrow \begin{cases} x = \frac{2\pi}{3} + 2k\pi \\ x = -\frac{2\pi}{3} + 2k'\pi \end{cases} \quad k, k' \in \mathbb{Z}$

95 Sur $[0; 4\pi[$: $S = \left\{ \frac{2\pi}{3}; \frac{4\pi}{3}; \frac{8\pi}{3}; \frac{10\pi}{3} \right\}$

925 4) $\cos^2 x = \frac{3}{4} \Leftrightarrow \cos x = \frac{\sqrt{3}}{2}$ ou $\cos x = -\frac{\sqrt{3}}{2}$
 sur $[0; 2\pi[$: $S = \left\{ \frac{\pi}{6}; \frac{5\pi}{6}; \frac{7\pi}{6}; \frac{11\pi}{6} \right\}$

925 5) $6 - 12 \cos x > 0 \Leftrightarrow -12 \cos x > -6 \Leftrightarrow \cos x < \frac{1}{2}$
 sur $] -\pi; \pi]$: $S =] -\pi; -\frac{\pi}{3} [\cup] \frac{\pi}{3}; \pi]$

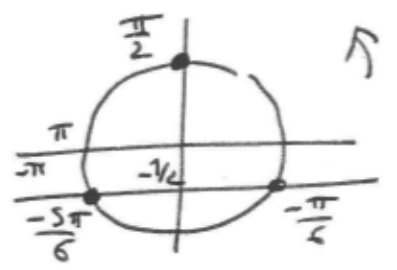
925 6) $\sin x \leq \frac{\sqrt{3}}{2}$ sur $] -\pi; 2\pi]$
 $S =] -\pi; \frac{\pi}{3}] \cup [\frac{2\pi}{3}; 2\pi]$



7) $2 \sin^2 x - \sin x - 1 = 0$ $x \in] -\pi; \pi]$

$\Leftrightarrow \begin{cases} 2x^2 - x - 1 = 0 \\ x = \sin x \in [-1; 1] \end{cases}$

$\Leftrightarrow \begin{cases} 2(x-1)(x+1/2) = 0 \\ x = \sin x \end{cases}$



$\Leftrightarrow \sin x = 1$ ou $\sin x = -1/2$
 $S = \left\{ -\frac{5\pi}{6}; -\frac{\pi}{6}; \frac{\pi}{2} \right\}$

8) $\sin 2x = \sin \frac{\pi}{4} \Leftrightarrow \begin{cases} 2x = \frac{\pi}{4} + 2k\pi \\ \text{ou} \\ 2x = \frac{3\pi}{4} + 2k'\pi \end{cases} \quad k, k' \in \mathbb{Z}$

$\Leftrightarrow \begin{cases} x = \frac{\pi}{8} + k\pi \\ \text{ou} \\ x = \frac{3\pi}{8} + k'\pi \end{cases}$

sur $] -\pi; \pi]$

$S = \left\{ -\frac{7\pi}{8}; -\frac{5\pi}{8}; \frac{\pi}{8}; \frac{3\pi}{8} \right\}$

