

$$1) \quad \cos(2x) - \frac{1}{2} = 0 \quad \text{avec} \quad -\frac{\pi}{2} \leq x \leq \frac{\pi}{2}$$

$$\text{On pose } X = 2x \quad 2\left(-\frac{\pi}{2}\right) \leq 2x \leq \left(\frac{\pi}{2}\right) \times 2$$

$$-\pi \leq X \leq \pi$$

Puisqu'on va résoudre une équation en X , on écrit la condition avec X

$$\text{Ensuite, on a:} \quad \cos X - \frac{1}{2} = 0$$

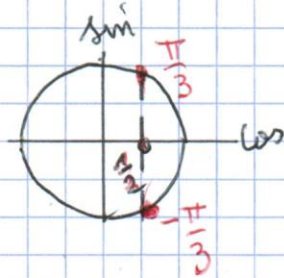
$$\cos X = \frac{1}{2}$$

$$X = -\frac{\pi}{3} \quad \text{ou} \quad X = \frac{\pi}{3}$$

On revient en x :

$$2x = -\frac{\pi}{3} \quad \text{ou} \quad 2x = \frac{\pi}{3}$$

$$x = -\frac{\pi}{6} \quad \text{ou} \quad x = \frac{\pi}{6}$$



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

$$2) \quad \cos(3x) = \sin\left(\frac{\pi}{6}\right) \quad \text{avec} \quad -\frac{\pi}{3} \leq x \leq \frac{\pi}{3}$$

$$\text{On pose } X = 3x$$

$$-\pi \leq 3x \leq \pi$$

$$-\pi \leq X \leq \pi$$

$$\cos(X) = \sin\frac{\pi}{2}$$

$$\cos(X) = \frac{1}{2}$$

$$X = -\frac{\pi}{3} \quad \text{ou} \quad X = \frac{\pi}{3}$$

$$3x = -\frac{\pi}{3} \quad \text{ou} \quad 3x = \frac{\pi}{3}$$

$$\mathcal{S} = \left\{ -\frac{\pi}{9}; \frac{\pi}{9} \right\}$$

$$3) \quad 1 + \sin(5x) = \frac{-\sqrt{3} + 2}{2} \quad -\frac{\pi}{5} \leq x \leq \frac{\pi}{5}$$

$$\sin(5x) = -\frac{\sqrt{3}}{2}$$

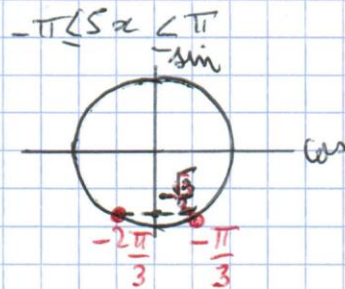
$$\text{On pose } X = 5x$$

$$\sin(X) = -\frac{\sqrt{3}}{2} \quad -\pi \leq X \leq \pi$$

$$X = -\frac{2\pi}{3} \quad \text{ou} \quad X = -\frac{\pi}{3}$$

$$5x = -\frac{2\pi}{3} \quad \text{ou} \quad 5x = -\frac{\pi}{3}$$

$$x = -\frac{2\pi}{15} \quad \text{ou} \quad x = -\frac{\pi}{15}$$



$$\mathcal{S} = \left\{ -\frac{2\pi}{15}; -\frac{\pi}{15} \right\}$$