

[07.0006]

$$f(x) = 2 \sin(x) + \sin(2x)$$

1) $D = \mathbb{R}$.

2) \sin est impaire donc f est impaire

$$\hookrightarrow f(-x) = -f(x)$$

$$f(x+2\pi) = 2 \sin(x+2\pi) + \sin(2x+4\pi)$$

$$= 2 \sin(x) + \sin(2x)$$

$$= f(x)$$

$\hookrightarrow f$ est 2π périodique.

3) $f'(x) = 2 \cos(x) + 2 \cos(2x)$

4) $f'(x) = 0 \Leftrightarrow 2 \cos(x) + 2 \cos(2x) = 0$

$$\Leftrightarrow \cos(x) + \cos(2x) = 0$$

$$\Leftrightarrow \cos(x) - 1 + 2 \cos^2(x) = 0$$

on pose $t = \cos(x)$

on a alors : $2t^2 + t - 1 = 0$

$$\Leftrightarrow (t+1)(2t-1) = 0$$

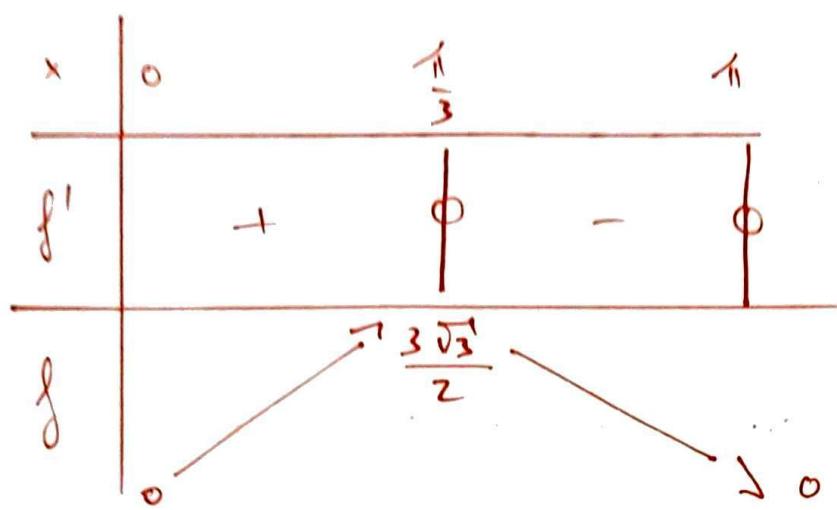
$$\text{donc } t = -1 \text{ ou } t = \frac{1}{2}$$

$$\text{donc } \cos(x) = -1 \text{ ou } \cos(x) = \frac{1}{2}$$

$$\text{sur } [0; \pi] \text{ on a alors } x = \frac{\pi}{3} \text{ ou } x = \pi$$

Done,

on étudie sur
 $[0; \pi]$.



5)

