

$$f(0) = 0 \rightarrow 1 + b = 0 \rightarrow b = -1$$

$$f'(0) = 0 \rightarrow \frac{3 \cos^2(2x) \times (-\sin 2x) \times 2 + 2ax}{1 - 4x^2} = 2$$

$$= \frac{3 \left(1 - \frac{8x^2}{2}\right) \times (-2x) \times 2 + 2ax}{x} = \frac{48x^3 - 12x + 2ax}{x} = 2$$

$$f'(x) = 2x$$

$$f'(x_1) = 2x_1 = m \rightarrow x_1 = \frac{m}{2}$$

$$f'(x_2) = 2x_2 = -\frac{1}{m} \rightarrow x_2 = -\frac{1}{2m}$$

$$f(x_1) = f(x_2) \rightarrow \frac{m^2}{4} = \frac{1}{4m^2} \rightarrow 4m^4 = 4 \rightarrow m = \pm 1 \rightarrow \left. \begin{matrix} x_1 = \frac{1}{2} \\ x_2 = -\frac{1}{2} \end{matrix} \right\} 2f(x) = -\frac{3}{2}$$

$$m = \frac{6 - (-12)}{2 \cdot 5 - (-0.15)} = \frac{18}{3} = 6 \rightarrow y = 6x - 9$$

$$f(x) = \frac{-3}{2x-1} \xrightarrow{x=5} -\frac{1}{3}$$

$$f'(x) = \frac{-2a}{(2x-1)^2} = 6 \rightarrow 24x^2 - 24x + 6 = -2a$$

$$4x^2 - 4x + 1 = \frac{a}{3(2x-3)} = 6x - 9 \Rightarrow (a = 12x^2 - 24x + 9) \times 2$$

$$48x^2 - 48x + 18 = 0 \rightarrow 2x^2 - 3x + 1 = 0 \rightarrow \left. \begin{matrix} x = 1 \rightarrow a = -3 \\ x = \frac{1}{2} \rightarrow \text{O.O.E} \end{matrix} \right\}$$

$$f'(a) = \frac{1-a^2}{(a+1)^2} \xrightarrow{x=1} \frac{1-a^2}{(a+1)^2} = \frac{(1+a)(1-a)}{(a+1)^2} = 2 \rightarrow 2a+2 = 1-a \rightarrow 3a = -1 \rightarrow a = -\frac{1}{3}$$

$$f(x) = \frac{x - \frac{1}{3}}{-\frac{1}{3}x + 1} \xrightarrow{x=1} \frac{\frac{2}{3}}{\frac{2}{3}} = 1 = 2 + b \rightarrow b = -1$$

$$a - b = -\frac{1}{3} + 1 = \frac{2}{3}$$

$$\sin x + \frac{1}{2} \cos x = \frac{3}{2} \sin x \rightarrow \cos x = \sin x \rightarrow \tan x = 1 \rightarrow x \in [0, \pi] \rightarrow x = \frac{\pi}{4}$$

$$f'(x) = \cos x - \frac{1}{2} \sin x \Rightarrow \frac{2\sqrt{2}}{4} - \frac{\sqrt{2}}{4} = \frac{\sqrt{2}}{4}$$

$$y = \frac{\sqrt{2}}{4}x + \frac{3\sqrt{2}}{4} - \frac{\pi\sqrt{2}}{16} = 0$$

$$\frac{\sqrt{2}}{4}x = \frac{\pi\sqrt{2}}{16} - \frac{3\sqrt{2}}{4}$$

$$x = \frac{\pi}{4} - 3$$

$$f'(x) = 6x^2 - 6x - 12 = 0 \rightarrow x^2 - x - 2 = 0 \rightarrow x = -1 \quad \text{ext}_1 \left| \frac{-1}{8} \right. \quad \text{ext}_2 \left| \frac{2}{-19} \right.$$

$$m = \frac{8+19}{-1-2} = \frac{27}{-3} = -9$$

$$6x^2 - 6x - 12 = -9 \rightarrow 6x^2 - 6x - 3 = 0 \rightarrow 2x^2 - 2x - 1 = 0$$

المحلوسات

$$f(-1) = -1 + a - b - 1 = -4 \rightarrow a - b = -2$$

$$f'(-1) = 3x^2 + 2ax + b \rightarrow 3 - 2a + b = -4 \rightarrow b - 2a = -7$$

$$\begin{cases} -a = -9 \rightarrow a = 9 \\ b = 11 \end{cases} \left\{ \begin{array}{l} \frac{a}{b} = \frac{9}{11} \end{array} \right.$$

$$f(0) = 4 \rightarrow C = 4$$

$$f'(0) = 0 \rightarrow b = 0$$

$$f'(x) = 3x^2 + 2ax = 0 \rightarrow x(3x + 2a) = 0 \rightarrow x = 0 \rightarrow x = -\frac{2a}{3}$$

$$f\left(-\frac{a}{3}\right) = 0 \rightarrow \frac{-8a^3}{27} + \frac{4a^3}{9} + 4 = 0 \rightarrow \frac{4a^3}{27} = -4 \rightarrow a = -3$$

$$\min_{\text{G}} = 2$$

$$f'(x) = 4x^3 - 12x = 0 \rightarrow x = 0, x = \pm\sqrt{3}$$

$$f''(x) = 12x^2 - 12 = 0 \rightarrow x = \pm 1$$

$$\begin{cases} m_{AB} = 0 \\ m_{CO} = 0 \end{cases} \left\{ \begin{array}{l} \text{تangent} \\ \text{normal} \end{array} \right.$$

x	-1	+	1
y''	+	-	+
y	U	∩	U

x	$-\sqrt{3}$	0	$\sqrt{3}$
y'	-	+	-
y	min		min
	-4		-4