نام و نام خانوادگی ....آ.سباطالش

پاسخنامه تشریحی تکلیف شماره ...۲۷... **کلاس** ...دوازدهم ریاضی B...

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$\lim_{x\to 0^+} \frac{f(x)}{x} = 0 = f'(0) = \lim_{x\to 0^+}\frac{f(x)-f(0)}{x-0} = 0 \to \boxed{f(0)=0}$

$f(0) = \cos^3(2\times 0)+a(0)^2+b=0 \to 1+b=0 \to \boxed{b=-1}$

$\lim_{x\to 0}\frac{f'(x)}{x} = 2 \xrightarrow{Hop} f''(0)=2 \to f'(x)=3\cos(2x)^2(-2\sin 2x)+2ax$

$\to f''(x) = \cancel{\ldots}\ 3\times(-4)\cos(2x)^3+2a$

$\to f''(0) = -12+2a=2 \to 2a=14 \to \boxed{a=7}$ $\quad a+b=7-1=\boxed{6}$

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طبق ضابطه داده شده $x_1=-x_2$ باشد.

$y'=2x \quad y'_1=2x_1 \quad y'_2=2x_2 \to y'_2=-2x_1$

$2x_1\times(-2x_1)=-1 \to x_1^2=\frac{1}{4} \to x_1=\pm\frac{1}{2} \to x_2=\mp\frac{1}{2} \to y_1=\frac{1}{4}-1=\frac{-3}{4}$

$y_2=\frac{1}{4}-1=\frac{-3}{4}$ $\to \boxed{\frac{-6}{4}}$

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$f'(x)=\frac{-2a}{(2x-1)^2}$ $\quad m=\frac{\Delta y}{\Delta x}=\frac{6-(-12)}{2/5-(-0/5)}=\frac{18}{3}=\boxed{6}$

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$y'=2 \quad y'=\frac{1-a^2}{(ax+1)^2} \xrightarrow[y'=2]{x=1} 2=\frac{1-a^2}{(a+1)^2}$

$\to 2a^2+2+4a=1-a^2 \to 3a^2+4a+1=0 \to a=-1$ غ ق ق

$\to a=\frac{-1}{3}$

$y=\frac{x+(\frac{-1}{3})}{\frac{-1}{3}x+1}=2x+b \to \frac{\frac{-2}{3}}{\frac{2}{3}}=2+b \to -1=2+b \to b=-3$

$a-b=\frac{-1}{3}+3=\boxed{\frac{8}{3}}$

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$\frac{3}{2}\sin x=\sin x+\frac{1}{2}\cos x \to \frac{1}{2}\sin x=\frac{1}{2}\cos x \to \sin x=\cos x$

$\to \boxed{x=\frac{\pi}{4}}$ $\quad f'(x)=\cos x-\frac{1}{2}\sin x \xrightarrow{x=\frac{\pi}{4}} \frac{\sqrt{2}}{2}-\frac{\sqrt{2}}{4}=\boxed{\frac{+\sqrt{2}}{4}}$

$f(\frac{\pi}{4})=\frac{3\sqrt{2}}{4}$ $\quad d\to y-\frac{3\sqrt{2}}{4}=\frac{\sqrt{2}}{4}(x-\frac{\pi}{4}) \xrightarrow{y=0} -3=x-\frac{\pi}{4}$

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

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$f'(x) = 6x^2 - 6x - 12 = 0 \to x = -1 , \; x = 2$

x		-1		2	
y'	$+$	0	$-$	0	$+$
y	$\nearrow$	8	$\searrow$	-19	$\nearrow$
		max		min	

$m_{AB} = \frac{-19-8}{2-(-1)} = \frac{-27}{3} = -9$

$6x^2 - 6x - 12 = -9 \to 6x^2 - 6x - 3 = 0 \to \Delta = 36 + 72 > 0 \to$ ۲ نقطه

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$y' = 3kx^2 + 2(k+1)x \to y'' = 6kx + 2k + 2 = 0$

$\to 6kx = -2(k+1) \to x = \frac{-(k+1)}{3k} < 0 \to$

	-1		0	
$-$		$+$		$-$

$y > 0 \to \left(\frac{-(k+1)}{3k}\right)^3 \times k + (k+1)\left(\frac{-(k+1)}{3k}\right)^2 > 0$

$\to \left(\frac{-(k+1)}{3k}\right)^2 \left(\frac{-(k+1)}{3} + k + 1\right) = \left(\frac{k+1}{3k}\right)^2 \left(\frac{2k+2}{3}\right) > 0$

$\to$

	-1		0	
$-$		$+$		$+$

$\to$ به ازای بی‌شمار k

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$-4 = -1 + a - b - 1 \to a - b = -2$

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$f(0) = 4 \to c = 4 \qquad f'(x) = 3x^2 + 2ax + b \to f'(0) = 0 = b$

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

$f\left(\frac{-2a}{3}\right) = 0 \to \frac{-8a^3}{27} + \frac{4a^3}{9} + 4 = 0 \to \frac{4a^3}{27} = 4 \to a = 3$

$\frac{-2a}{3} = \frac{-2 \times 3}{3} = -2$

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$f'(x) = 4x^3 - 12x = 4x(x^2 - 3) \to x = 0 , \; x = \pm\sqrt{3}$

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

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$f''(x) = 12x^2 - 12 \to x = +1 \to y = 0 , \; x = -1 \to y = 0$

$m_{AB} = 0$

$m_{CD} = 0 \to$ زاویه‌ای ایجاد نمی‌شود