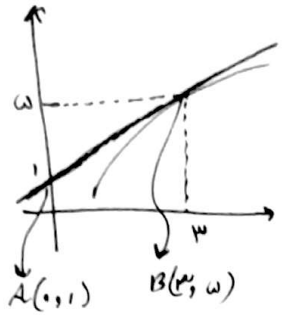
نام و نام خانوادگی .....مشاور بکاره عالم..... پاسخنامه تشریحی تکلیف شماره ...۲۴... کلاس ...یازدهم دختر A.....

۱



$$f'(۳) = \frac{ω-۱}{۳-۰} = \boxed{\frac{ω}{۳}}$$

۲

$(-۱,۱)\ /\ (۲,۲) \longrightarrow m = \frac{۲-۱}{\underset{۳}{۲-(-۱)}} = \frac{۱}{۳} \longrightarrow y = \frac{۱}{۳}(x+۱)+۱ \Rightarrow y = \frac{۱}{۳}x + \frac{۴}{۳} \rightarrow$ معادله خط مماس

$\frac{۱}{۳}x + \frac{۴}{۳} = \sqrt{ax-۱} \longrightarrow x^۲ + (۸-۹a)x + ۲a = ۰ \xrightarrow{\Delta = ۰} (۸-۹a)^۲ - ۱۰۰ = ۰$

$\Rightarrow a = ۲, -\frac{۲}{۹}$ $\quad \frac{۳۱}{a=۲} \Rightarrow f(x) = \sqrt{۲x-۱} \longrightarrow f(۵) = \boxed{۳}$

۳

$۴y - ۳x = n \longrightarrow$ مجانب $= \frac{۳}{۴}$ $\quad \frac{f(x) = \frac{x^۲+mx+۱}{x+۳}}{f'(۱) = \frac{۳}{۴}} \Rightarrow f'(x) = \frac{x^۲+۶x+۳m-۱}{(x+۳)^۲} \xrightarrow{x=۱} \frac{\cancel{۶}^{۲}+۳m}{\cancel{۱۶}_{۴}} = \frac{۳}{۴}$

$\Rightarrow ۲+m = ۴ \Rightarrow \boxed{m=۲}$

$f(۱) = \frac{۱+(۲)(۱)+۱}{۱+۳} = \frac{۴}{۴} = ۱ \Rightarrow ۴y - ۳ = n \Rightarrow y = \frac{n+۳}{۴} = ۱ \Rightarrow n+۳ = ۴ \Rightarrow \boxed{n=۱}$

$m+n = ۲+۱ = \boxed{۳}$

۴

$f(x) = \frac{\cancel{(۳-\sin x)}(\sin^۲x+۹+۳\sin x)}{\cancel{(۳-\sin x)}(۳+\sin x)} \Rightarrow f(x) = \frac{\sin^۲x+۳\sin x+۹}{۳+\sin x}$ / $۳g(x) = \frac{۹}{۳+\sin x}$

$۳g'(\frac{۵\pi}{۳}) - f'(\frac{۵\pi}{۳}) = \left(۳g(\frac{۵\pi}{۳}) - f(\frac{۵\pi}{۳})\right)' \longrightarrow ۳g(x) - f(x) = \frac{\cancel{۹} - \sin^۲x - ۳\sin x - \cancel{۹}}{۳+\sin x} = -\frac{\sin x(\sin x + \cancel{۳})}{\cancel{۳+\sin x}}$

$\Rightarrow \left(-\sin(\frac{۵\pi}{۳})\right)' = -\cos(\frac{۵\pi}{۳}) = \boxed{-\frac{۱}{۲}}$

۵

$g'(\sqrt[۳]{۳})\, f'(g(\sqrt[۳]{۳})) = \left(f(g(\sqrt[۳]{۳}))\right)'$ $\quad f(x) = \frac{۱}{\sqrt[۵]{x+|x|}} \xrightarrow[\text{مشتق}]{\text{زوجی}} f(x) = \frac{۱}{\sqrt[۵]{۲x}}$

$g(x) = \frac{۱}{x^۵+|x^۵|} \xrightarrow[\text{مشتق}]{\text{زوجی}} g(x) = \frac{۱}{۲x^۵}$

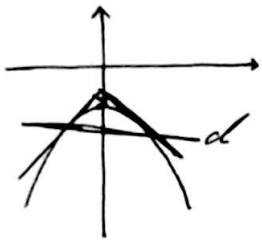
$\rightarrow fog = f\left(\frac{۱}{۲x^۵}\right) = x \longrightarrow (x)' = \boxed{۱}$

Scanned with CamScanner

$$g(x) = \frac{f(x)-1}{x} \longrightarrow \lim_{x\to 0} \frac{f(x)-1}{x} \xrightarrow{f(0)=1} \lim_{x\to 0} \frac{f(x)-f(0)}{x-0} = f'(0)$$

$$f'(x) = 2\left(\frac{-1+\sin x}{1+\sin x}\right)(\cos x)\left(\frac{2}{(\sin x+1)^2}\right) \xrightarrow{x=0} f'(0) = (2)(-1)(1)(2) = \boxed{-4}$$

۶



$\xrightarrow{\text{عرض نقطه برخورد}} f(x) = -x^2-1$ / $\underset{\text{خط}}{g(x)} = k$ / $-x^2-1 = k \Rightarrow x^2 = -k-1$

$\Longrightarrow$ طول $= \pm\sqrt{-k-1}$ $\Rightarrow f'(x) = -2x$ / $m_1 = -2\sqrt{-k-1}$, $m_2 = 2\sqrt{-k-1}$

۷

$\xrightarrow{m_1 \cdot m_2 = -1} (-2\sqrt{-k-1})(2\sqrt{-k-1}) = -1 \Rightarrow -4(-k-1) = -1 \Rightarrow 4k+4 = -1 \Rightarrow k = -\frac{5}{4}$

$\Rightarrow g(x) = -\frac{5}{4} \longrightarrow$ فاصله منبع $= \frac{5}{4}$

$$\begin{cases} f(x) = g(x) \Rightarrow 2\sqrt{x}(4x^2+3) = mx \Rightarrow 8x^2+6 = m\sqrt{x} \\ f'(x) = g'(x) \text{ ---------- } x \end{cases} \longrightarrow 16x = \frac{m}{2\sqrt{x}}$$

۸

$\Rightarrow m = 32x\sqrt{x} \Rightarrow 8x^2+6 = 32x^2 \xrightarrow{x>0} x = \frac{1}{2} \xrightarrow{\text{جایگذاری}} m = 32\, x\sqrt{x}$

$\Rightarrow \boxed{m = 8\sqrt{2}}$

خط $= mx$ / $f(x) = \frac{\sqrt{x}}{-2x^2+x+1}$

$\rightarrow$ نقطه‌ی مماس $\rightarrow x = a \Rightarrow m = \underset{\text{از مبدأ می‌گذرد}}{\frac{f(a)}{a}} = f'(a) \Rightarrow f'(x) = \frac{\frac{-2x^2+x+1}{2\sqrt{x}} - \sqrt{x}(-4x+1)}{(-2x^2+x+1)^2} = \boxed{\frac{\sqrt{2}}{2}}$

۹

طول نقطه A ـ عرض

$\xrightarrow{f'(x) = \frac{f(x)}{2x\sqrt{x}}} \frac{\sqrt{x}}{2x(-2x^2+x+1)} \Rightarrow \frac{1}{\sqrt{x}(-2x^2+x+1)} = \frac{(-4x+1)\sqrt{x} - \frac{-2x^2+x+1}{2\sqrt{x}}}{(-2x^2+x+1)^2} \xrightarrow[\times(-2x^2+x+1)^2]{\text{در مخرج}} \Rightarrow (2x-1)(2x+1) = 0$

$\Rightarrow x = \frac{1}{2}$ $(x \geq 0)$

$x \to \left(\sqrt{\frac{5}{2}}\right)^- \Rightarrow \sqrt{x^2-1} \to \left(\frac{1}{2}\right)^- \Rightarrow g(x) \to 2^+$

$(f(g(x)))' \xrightarrow{\left(\sqrt{\frac{5}{2}}\right)^-} g'\left(\sqrt{\frac{5}{2}}\right) \cdot f'_+(2)$ / $g'(x) = \left((x^2-1)^{\frac{1}{2}}\right)' = -\frac{1}{2}(x^2-1)^{-\frac{3}{2}}(2x)$

۱۰

$\Rightarrow g'_-\left(\sqrt{\frac{5}{2}}\right) = -4\sqrt{5}$ / $x \to 2^+ \Rightarrow f(x) = (x^2)' \Rightarrow f'(x) = 4x^2 \Rightarrow f'_+(2) = 96$

$\rightarrow (-4\sqrt{5})(96) = 8(-48\sqrt{5}) \Rightarrow \boxed{\text{۸ برابر}}$

Scanned with CamScanner