نام و نام خانوادگی ....دلارام بهمرزا باقریان....... پاسخنامه تشریحی تکلیف شماره ۲۴....... کلاس دوازدهم ریاضی.........

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|---|---|
| <br>$F(۳) = ۵$<br>$d$ خط $\longrightarrow (۳,۵), (۰,۱) \longrightarrow m = \frac{۱-۵}{۰-۳} = \frac{۴}{۳}$ $\quad F'(۳) = m = \frac{۴}{۳}$ | ۱ |
| $A(b, \frac{۱}{۳}b+\frac{۴}{۳})$ $d \longrightarrow (۲,۲), (-۱,۱)$ $\quad y-۲ = \frac{۱}{۳}(x-۲) \to y = \frac{۱}{۳}x + \frac{۴}{۳}$<br>$F'(A) = m_d \ , \ F(A) = \frac{۱}{۳}b + \frac{۴}{۳}$<br>$F'(x)\ \frac{a}{۲\sqrt{ab-۱}} = \frac{۱}{۳} \to ۳a = ۲\sqrt{ab-۱} \to ۹a^۲ = ۴(ab-۱) \to b = \frac{۹a-۸}{۲}$<br>$b = \frac{۹a-۸}{۲} \longrightarrow ۳a = ۲\sqrt{\frac{۹a^۲-۸a-۲}{۲}} \xrightarrow{\text{توان ۲}} ۹a^۲ = ۱۸a^۲-۱۶a-۴ \to ۹a^۲-۱۶a-۴ = ۰ <$ $a = ۲$ ، $a = -\frac{۲}{۹}$ غ ق ق<br>$F(x) = \sqrt{۲x-۱} \longrightarrow F(۵) = \sqrt{۹} = \boxed{۳}$ | ۲ |
| $y = \frac{۳}{۴}x + \frac{n}{۴} \longrightarrow m = \frac{۳}{۴}$<br>$\frac{x^۲+mx+۱}{x+۳} \xrightarrow{\text{مشتق}} \frac{(۲x+m)(x+۳)-(۱)(x^۲+mx+۱)}{(x+۳)^۲} = \frac{(۲+m)(۴)-(۱)(۲+m)}{۱۶}$<br>$\frac{۸+۴m-۲-m}{\cancel{۱۶}\ ۴} = \frac{۳}{\cancel{۴}} \longrightarrow \frac{\cancel{۶}+\cancel{۳}m}{۴} = \cancel{۳} \longrightarrow ۲+m = ۴ \longrightarrow m = ۲$<br>$y = \frac{x^۲+۲x+۱}{x+۳} \xrightarrow{x=۱} ۱ \quad (۱,۱) \xrightarrow[\text{می‌کند}]{\text{در معادله صدق}} ۴(۱)-۳(۱) = n \to n = ۱$ $\quad m+n = \boxed{۳}$ | ۳ |
| $F(x) = \frac{\cancel{(۳-\sin\alpha)}(۹+۳\sin\alpha+\sin^۲\alpha)}{\cancel{(۳-\sin\alpha)}(۳+\sin\alpha)} = \frac{۹+۳\sin\alpha+\sin^۲\alpha}{۳+\sin\alpha}$<br>$g(x) = \frac{۳}{۳+\sin\alpha}$<br>$(۳g-F)(x) = \frac{-۳\sin\alpha-\sin^۲\alpha}{۳+\sin\alpha}$<br>$\frac{-\sin\alpha\ \cancel{(\sin\alpha+۳)}}{\cancel{(۳+\sin\alpha)}} = -\sin\alpha \xrightarrow{\text{مشتق می‌گیریم}} -\cos\alpha = -\cos\frac{۵\pi}{۳} = \boxed{\frac{۱}{۲}}$ | ۴ |
| $(F\circ g)'(x) = g'(x) \cdot F'(g(x)) \xrightarrow{x = \sqrt[۵]{۳}}$<br>$F(g(x)) = -\frac{۱}{\sqrt{\frac{۱}{x^۵+\underbrace{\lvert x^۵\rvert}_{+}} + \left\lvert\frac{۱}{x^۵+\underbrace{\lvert x^۵\rvert}_{+}}\right\rvert}} = \frac{-۱}{\sqrt[۵]{\frac{\cancel{۲}}{\cancel{۲}x^۵}}} = \frac{-۱}{\sqrt[۵]{\frac{۱}{x^۵}}} = \frac{-\frac{۱}{۱}}{\frac{۱}{x}} = -x$<br>$\xrightarrow{\text{مشتق}} \boxed{-۱}$ | ۵ |

۶

$F(x) = x.g(x) + 1 \longrightarrow g(x) = \frac{F(x) - 1}{x}$

$\lim_{x\to 0} g(x) = \frac{F(x) - \overset{F(0)}{1}}{x - 0} = F'(0)$

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

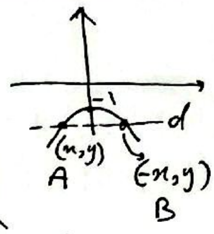
$= (-2).(2) = \boxed{-4}$

۷

$y = x^2+1 \xrightarrow[\text{قرینه نسبت به محور x ها}]{y \times (-1)} y = -x^2 - 1$

$m_d = 0 \longrightarrow y = b < -1$

$\xrightarrow{\text{مشتق}} -2x$

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$\boxed{\frac{5}{4} = \left|-\frac{5}{4}\right|}$ فاصله از مبدا مختصات

$\underbrace{(-2x)}_{\text{وقتی نقطه A را بگذاریم}} \underbrace{(2x)}_{\text{وقتی نقطه B را بگذاریم}} = -1 \longrightarrow -4x^2 = 1 \longrightarrow x^2 = \frac{1}{4} \longrightarrow x = \frac{1}{2}$

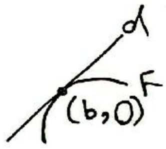
$\xrightarrow{\text{داخل معادله می‌گذاریم}} y = -x^2 - 1 \longrightarrow y = -\frac{1}{4} - \frac{4}{4} = -\frac{5}{4} \xrightarrow[\text{خط}]{\text{معادله}} \boxed{y = -\frac{5}{4}}$

۸

$d \text{ خط} \longrightarrow y = ax$

$F'(x) = \left(\frac{2}{2\sqrt{x}}\right)(4x^2+3) + (8x)(2\sqrt{x})$

$F(x) = 2\sqrt{x}\,(4x^2+3)$




$F(b) = ab \longrightarrow \left(\frac{2}{2\sqrt{b}}\right)(4b^2+3) + (8b)(2\sqrt{b}) = a = \frac{2(4b^2+3)}{\sqrt{b}} \; *$

$F'(b) = a \longrightarrow (4b^2+3) = \frac{ab}{2\sqrt{b}} = \frac{a\sqrt{b}}{2} \longrightarrow a = \frac{2(4b^2+3)}{\sqrt{b}}$

$* \xrightarrow{\text{طرفین وسطین}} (1)(4b^2+3) + 16b^2 = 2(4b^2+3) \longrightarrow 16b^2 = 4b^2 + 3 \longrightarrow 12b^2 = 3 \longrightarrow b = \pm\frac{1}{2}$

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$\text{شیب خط } d = a = \frac{2(4b^2+3)}{\sqrt{b}} \longrightarrow a = \frac{2(1+3)}{\frac{1}{\sqrt{2}}} = \boxed{8\sqrt{2}}$

۹

$\text{خط } d \quad y = ax \xrightarrow{\text{نقطه } A} (m, am)$

$F(m) = am \longrightarrow \frac{\cancel{\sqrt{m}}}{-2m^2+m+1} = a\cancel{m}^{\sqrt{m}} \longrightarrow a = \frac{1}{\sqrt{m}\,(-2m^2+m+1)} \quad \frac{1}{\sqrt{\frac{1}{2}}\left(-2\left(\frac{1}{4}\right)+\frac{1}{2}+1\right)} = \boxed{\sqrt{2}}$

$F'(m) = a$

$F'(x) = \frac{\left(\frac{1}{2\sqrt{x}}\right)(-2x^2+x+1) - (-4x+1)(\sqrt{x})}{(-2x^2+x+1)^2} = \frac{1}{\sqrt{m}\,\cancel{(-2m^2+m+1)}} \longrightarrow$ غ ق ق $-\frac{1}{5} = m$, $\frac{1}{2} = m$

$\longrightarrow \frac{\left(-m^2 + \frac{m}{2} + \frac{1}{2}\right) + 4m^2 - m}{} = -2m^2+m+1 \longrightarrow 5m^2 - \frac{3m}{2} - \frac{1}{2} = 0 \longrightarrow 10m^2 - 3m - 1 = 0$

۱۰

$g'\left(\frac{\sqrt{5}}{2}^-\right) \times F'\left(\underline{g\left(\frac{\sqrt{5}}{2}^-\right)}\right) \qquad F(x) = (x[x])^3 \xrightarrow[x=2^+]{} (2x)^3 = 8x^3 \xrightarrow{\text{مشتق}} 24x^2 = F'(x)$

$g\left(\frac{\sqrt{5}}{2}^-\right) = \frac{1}{\sqrt{\left(\frac{5}{4}\right)^- - 1}} = \frac{1}{\sqrt{\frac{1}{4}^-}} = 2^+$

$F'(2^+) = 96 \qquad g(x) = \frac{1}{\sqrt{x^2-1}} \xrightarrow{\text{مشتق}} g'(x) = \frac{-1}{x^2-1} \times \frac{\cancel{2}x}{\cancel{2}\sqrt{x^2-1}} = \frac{-x}{(x^2-1)(\sqrt{x^2-1})}$

$g'\left(\frac{\sqrt{5}}{2}^-\right) \times F'(2^+) = (-4\sqrt{5})(96) \longrightarrow \frac{+4\cancel{\sqrt{5}} \times \cancel{96}^{2}}{+48\cancel{\sqrt{5}}} = \boxed{+8}$