امیرکاشف

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$f(0)=1$
$f(3)=5 \Rightarrow$ شیب خط $=\frac{5-1}{3}=\frac{4}{3}=f'(2)$

۲

شیب خط $=\frac{1}{3}$

معادله خط مماس $y-1=\frac{1}{2}(x+1) \Rightarrow y=\frac{1}{2}x+\frac{4}{3}$

$\sqrt{ax-1}=\frac{1}{2}x+\frac{4}{2} \Rightarrow x^2+(8-6a)x+25=0 \Rightarrow \Delta=0$

تعریف نشده $\Leftarrow a=-\frac{2}{6}$

$f(x)=\sqrt{2x-1}+f(0)=3 \Leftarrow a=2$

۳

$y'(1)=\frac{(2+m)(4)-(1)(2+m)}{16}=\frac{8+4m-2-m}{16}=\frac{6+3m}{16}$

$4y-3x=n \xrightarrow{\text{شیب}=\frac{6+3m}{16}} \frac{3}{4}=\frac{6+3m}{16} \Rightarrow 12=6+3m \Rightarrow m=2$

$y(1)=\frac{1+2+1}{4}=1 \Rightarrow \frac{3+n}{4}=1 \Rightarrow 4-3=n=1 \Rightarrow m+n=3$

۴

$(3g'-f')(\frac{5\pi}{2})$

$f(x)=\frac{(3-\sin x)(9+\sin^2 x+3\sin x)}{(3-\sin x)(3+\sin x)}$

$g'(x)=\frac{-3\cos x}{(3+\sin x)^2}$

$f'(x)=\frac{(2\sin x\cos x+3\cos x)(3+\sin x)-\cos x(9+\sin^2 x+3\sin x)}{(3+\sin x)^2}$

$$(3g' - f')(x) = \frac{-9\cos x - \sin^2 x\cos x - 6\sin x\cos x}{(3+\sin x)^2} \xrightarrow{x=\frac{5\pi}{4}} \frac{-4{,}5 - \frac{3}{8} + \frac{3}{4}\sqrt{2}}{\left(\frac{6-\sqrt{2}}{2}\right)^2}$$

$=$

$$g'(\sqrt[5]{3})\, f'(g(\sqrt[5]{3})) = (f\circ g)'(\sqrt[5]{3})$$

$$f\circ g(x) = \frac{-1}{5\sqrt{3\left(\frac{1}{3x^5}\right)}} = -x \Rightarrow (f\circ g)'(\sqrt[5]{3}) = -1$$

$$f(x) = x\,g(x) + 1 \Rightarrow g(x) = \frac{f(x)-1}{x} = \frac{\left(\frac{-1+\sin x}{1+\sin x}\right)^2 - 1}{x}$$

$$\Rightarrow \lim_{x\to 0} g(x) = \frac{2\left(\frac{-1+\sin x}{1+\sin x}\right)\left(\frac{\cos x(1+\sin x) - \cos x(-1+\sin x)}{(1+\sin x)^2}\right)}{1} = 2(-1)\left(\frac{1+1}{1}\right)$$

هوپیتال

$= -4$

۷

$$y = -(x^2+1) \Rightarrow f'(x) = -2x \qquad f'(\alpha)\, f'(-\alpha) = -1$$

$$(-2\alpha)(2\alpha) = -1 \Rightarrow \alpha^2 = \frac{1}{4} \xrightarrow{\alpha>0} \alpha = \frac{1}{2} \Rightarrow f\left(\frac{1}{2}\right) = -\frac{5}{4} \Rightarrow$$

عرض [illegible]

ضمنا d هم $-\frac{5}{4}$ است و $1{,}25$ تا محور فاصله دارد

۸

$$d\ \text{شیب} = \frac{f(x) - f(0)}{x - 0} = \frac{2\sqrt{x}(4x^2+3)}{x}$$

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

$$\Rightarrow \frac{2\sqrt{x}(4x^2+3)}{x} = \frac{\overbrace{4x^2+3+16x^2}^{20x^2+3}}{\sqrt{x}}$$

$$\Rightarrow 8x^2 + 6 = 20x^2 + 3 \Rightarrow 12x^2 = 3 \Rightarrow x^2 = \frac{1}{4} \Rightarrow x = \pm\frac{1}{2}$$

قابل قبول $\frac{1}{2}$

$$\Rightarrow \text{شیب} = \frac{2\sqrt{\frac{1}{2}}\left(4\left(\frac{1}{4}\right)+3\right)}{\frac{1}{2}} = \frac{16}{\sqrt{2}} = 8\sqrt{2}$$

$$\alpha^{\prime} - \left(\frac{\sqrt{\alpha}}{\gamma}\right)^{-} = g(x) \cdot \gamma^{\alpha}$$

$$y' = g'(x)\, f'(g(x)) \Rightarrow y'\left(\frac{\sqrt{\alpha}}{\gamma}\right)^{-} = -\frac{\gamma}{\gamma}\sqrt{\alpha}\, f'(\gamma^{\alpha}) = -\frac{\gamma}{\gamma}\sqrt{\alpha}\, \pi^{r}(\varepsilon^{r})_{\alpha<\gamma}$$

$$-\frac{\gamma}{\gamma}\Lambda\sqrt{\alpha} \quad \textcircled{\Lambda}$$

$$y' \perp \mu\Lambda$$

$$g'(x) = \frac{-\alpha}{(\alpha^{r}-1)\sqrt{\alpha^{r}-1}} \Rightarrow g'\left(\frac{\sqrt{\alpha}}{\gamma}\right) = -\frac{\varepsilon\sqrt{\alpha}}{\gamma}$$

$$f(x) = \left(\alpha\left[\alpha\right]\right)^{\pi} \Rightarrow f'(x) = \pi^{\gamma}(\alpha\sqrt{\alpha}\,)^{\gamma}\left[\alpha\right]$$

$\textcircled{1}$

$$\left(\frac{\gamma}{\gamma}\right)^{-} \Rightarrow g(x) = \gamma^{\alpha}$$

$$\left(\frac{\gamma}{\gamma}\right)^{-\alpha-1} = -\frac{\gamma}{\gamma}\alpha^{\gamma}\varepsilon_{\alpha+\varepsilon}$$

$$\gamma\beta\alpha^{\gamma}-\varepsilon^{\alpha}-1\varepsilon\cdot \Rightarrow \frac{\gamma^{\alpha}+\gamma}{\gamma\cdot} \Rightarrow \textcircled{\frac{1}{\alpha}} \Rightarrow f(\frac{1}{\varepsilon}) = \frac{\frac{1}{\sqrt{\gamma}}}{\frac{1}{\gamma}\sqrt{\alpha}+1} \quad \textcircled{\frac{\pi}{\varepsilon}}$$

$$\textcircled{\frac{1}{\alpha}} \quad \textcircled{-\frac{1}{\alpha}}$$

$$\left(\frac{\gamma}{\gamma}\right)^{-\alpha-1} = -\frac{\gamma}{\gamma}\alpha^{\gamma}\varepsilon_{\alpha+\varepsilon}$$

$$\gamma\beta\alpha^{\gamma}-\varepsilon^{\alpha}-1\varepsilon\cdot \Rightarrow \frac{\gamma^{\alpha}+\gamma}{\gamma\cdot} \Rightarrow \textcircled{\frac{1}{\alpha}} \Rightarrow f(\frac{1}{\varepsilon}) = \frac{\frac{1}{\sqrt{\gamma}}}{\frac{1}{\gamma}\sqrt{\alpha}+1} \quad \textcircled{\frac{\pi}{\varepsilon}}$$

$$\textcircled{\frac{1}{\alpha}} \quad \textcircled{-\frac{1}{\alpha}}$$

$$\frac{\sqrt{\alpha}}{\alpha\cdot} = \frac{(-\gamma\alpha^{\gamma}+\alpha+1)\,\alpha}{\alpha\cdot\cdot} \qquad \frac{\varepsilon\alpha\sqrt{\alpha}-\sqrt{\alpha}}{(-\varepsilon\alpha+\varepsilon)(\sqrt{\alpha})} = \frac{\sqrt{\alpha}}{(\gamma\alpha^{\gamma}+\alpha+1)\alpha} = \frac{\frac{1}{\sqrt{\gamma}}}{\frac{1}{\gamma}\sqrt{\alpha}+1} \cdot \frac{\frac{\pi}{\varepsilon}}{\frac{1}{\gamma}\sqrt{\alpha}+1}$$

$$f'(x) = \frac{-\gamma\alpha^{\gamma}+\alpha+1}{\gamma\sqrt{\alpha}} - \frac{(-\varepsilon\alpha+\varepsilon)(\sqrt{\alpha})}{(\gamma\alpha^{\gamma}+\alpha+1)^{\gamma}} = \frac{-\gamma\alpha^{\gamma}+\alpha+1+\gamma\Lambda\alpha^{\gamma}-\gamma\alpha}{\gamma\sqrt{\alpha}} = \frac{-\gamma\alpha^{\gamma}-\alpha+1}{\gamma\sqrt{\alpha}}$$

$\textcircled{\alpha}$