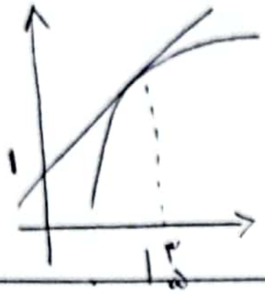
آیدا نامداری
دوازدهم تجربی
تکلیف ۲۴

۱۸٫۷۵

$\boxed{۱}$



$|^{۳}_{۵}$ $|^{۰}_{۱}$

$f'(۳)=\frac{۴}{۳} \rightarrow$ شیب خط مماس ✓ ۲

$\boxed{۲}$

$|^{-۱}_{۱}$ $|^{۲}_{۲}$

$f'(\ )=\frac{۱}{۳}$

$\frac{۱}{۳}x+\frac{۴}{۳}$

$f(۵)=\sqrt{۵a-۱}$

$\frac{a}{۲\sqrt{ax-۱}}=\frac{\cancel{\frac{۲x+۸}{۹}}}{\frac{۱}{۳}}$

$\sqrt{۹}=③$ ✓

$\frac{x+۴}{۳}=\sqrt{ax-۱}$ ۲

$\frac{a}{۲(\frac{x+۴}{۳})}=\frac{۱}{۳}$

$\frac{۳a}{۲x+۸}=\frac{۱}{۳}$

$a=\frac{۲x+۸}{۹}$

$\boxed{۳}$

$\frac{(\cancel{۲x}+m)(x+۳)-(x^۲+mx+۱)}{(x+۳)^۲}=$ $(۲+m)(۴)-\ \ (۲+m)$

$\frac{۸+۴m-۲-m}{۱۶}=\frac{۳}{۴}$ ۱٫۷۵

$y=\frac{۳x+n}{۴}$ شیب $=\frac{۳}{۴}$

$\frac{x^۲+۲x+۱}{x+۱}\overset{f(۱)}{=}\frac{۴}{۲}=۲$

$\frac{۳m+۶}{\cancel{۱۶}_{۴}}=\frac{۳}{\cancel{۴}}$ ✓ $\boxed{m=۲}$

$۱۲=۳m+۶$

$f(۱)=۲$ $\frac{۳+n}{۴}=۲$ $\boxed{n=۵}$

$m+n=۵+۲=\boxed{۷}$

$\boxed{۴}$

$f(x)=\frac{۲۷-\sin^۳x}{۹-\sin^۲}$

$\frac{(\cancel{۳-\sin})(۹+\sin^۲+۳\sin)}{(۳+\sin)(\cancel{۳-\sin})}$

$f'(x)\ \frac{۲\sin(+\cos)+۳\cos}{\ }$

$\frac{\cancel{۲}x-\frac{\sqrt{۳}}{\cancel{۲}}x\frac{۱}{۲}+۳\frac{۷}{۲}}{\frac{۱}{۲}}$

$\frac{-۷\sqrt{۳}}{\cancel{۴}}$

$\frac{۱}{\cancel{۲}}$

$\sin(\frac{۵\pi}{۳})=-\frac{\sqrt{۳}}{۲}$

$\cos(۵\frac{\pi}{۳})=+\frac{۱}{۲}$

۱٫۵

$g(x)=\frac{۳}{۳+\sin x}$

$g'(x)=\frac{-\cos(۳)}{(۳+\sin)^۲}$ $\frac{-۳\times\frac{۱}{۲}}{(۳-\frac{\sqrt{۳}}{۲})^۲}$

$\frac{۹+\frac{۳}{۴}-۳\sqrt{۳}}{}$

$\frac{۳۹}{۴}-۳\sqrt{۳}$

$۳g'(\frac{۵\pi}{۳})-f'(\frac{۵\pi}{۳})$

$\downarrow$

$-۷\sqrt{۳}$

$\boxed{۵}$

$-\frac{۱}{\sqrt{۲x}}$ $\frac{۱}{۲x^۵}$

$f(x)=-\frac{۱}{\sqrt{x+|x|}}$

$g(x)=\frac{۱}{x^۵+|x|^۵}$ مثبت

۱٫۵

$g'(\sqrt[۵]{۳})\times f'(g(\sqrt[۵]{۳}))=(f\circ g)'$

$-\frac{۱}{\sqrt{\frac{۲}{۲x^۵}}}$

$-\frac{۱}{\sqrt{\frac{۱}{x^۵}}}=-\frac{۱}{\frac{۱}{\sqrt{۳}}}$

$\boxed{-\sqrt{۳}}$

$\boxed{۶}$

$f(x)=x(g(x)+1$

$f(x)=\left(\frac{-1+\sin x}{1+\sin}\right)^{۲}=x(g(x)+1$

$\lim_{x\to ۰}\frac{\left(\frac{-1+\sin x}{1+\sin x}\right)^{۲}-1}{x}\xrightarrow{\frac{۰}{۰}}$ hop

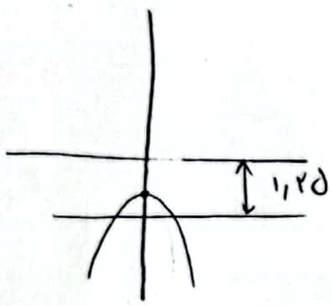
۲

$۲\left(\frac{-1+\sin ۰}{1+\sin ۰}\right)\left(\frac{\overset{1}{\cos}(1+\overset{1}{\cancel{\sin}})-(\overset{1}{\cos})(-1+\sin)}{(1+\sin)^{۲}}\right)$

$-۲(۲)\boxed{-۴}\frac{۲}{1}=۲$

$\boxed{۷}$

قرینه $=-x^{۲}-1$ $\quad -۲x$



$-\frac{1}{۴}-1=-\frac{۵}{۴}=-۱٫۲۵$

۲

$f'(a)\times f'(-a)=-1$ $\quad(-۲a)(۲a)=-۴a^{۲}$ $\quad a=\pm\frac{1}{۲}$

$f(\frac{1}{۲})=\frac{\frac{۲}{\sqrt{۲}}(۴)}{\frac{1}{۲}}\quad\frac{۸}{\sqrt{۲}}\quad\frac{۱۶}{\sqrt{۲}}\times\frac{\sqrt{۲}}{\sqrt{۲}}\quad\frac{۱۶\sqrt{۲}}{۲}=\boxed{۸\sqrt{۲}}$

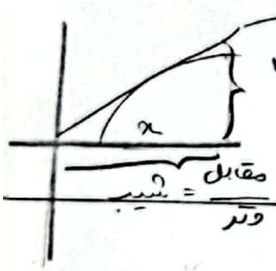
$۱۶x\sqrt{x}$
$\times ۲\sqrt{x}$

$\boxed{۸}$

$f(x)=۲\sqrt{x}(۴x^{۲}+۳)$

$\frac{۲}{۲\sqrt{x}}(۴x^{۲}+۳)+(۸x)(۲\sqrt{x})=\frac{۲\sqrt{x}(۴x^{۲}+۳)}{x}$

۲



ax+b |؟ → ax

$\frac{۸x^{۲}+۶+۳۲x^{۲}}{۲\sqrt{x}}=\frac{\overset{۴x}{۲\sqrt{x}(۴x^{۲}+۳)}}{x}$

$x^{۲}=\frac{1}{۴}$ $\quad x=\pm\frac{1}{۲}$ مثبت قبول به خاطر رادیکال

$۸x^{۳}+۶x+۳۲x^{۳}=۱۶x^{۳}+۱۲x$ $\quad ۲۴x^{۲}=۶$

$\cancel{۸x^{۲}}+۶+\cancel{۳۲}x^{۲}=\cancel{۱۶x^{۲}}+۱۲$

$\boxed{۹}$

$f'(x)=\frac{\frac{1}{۲\sqrt{x}}\times(-۲x^{۲}+x+1)-(-۴x+1)(\sqrt{x})}{(-۲x+x+1)^{\cancel{۲}}}=\frac{\sqrt{x}}{\cancel{(-۲x^{۲}+x+1)}\,x}$

$۲\sqrt{x}.\,x$

$\frac{x}{۲\sqrt{x}}(-۲x^{۲}+x+1)-(۴x^{۲}\sqrt{x}-x\sqrt{x})=\frac{\sqrt{x}}{۲x}(-۲x^{۲}+x+1)$

$\frac{-۲x^{۳}+x^{۲}+x}{۲\sqrt{x}}+\frac{۸x^{۳}-۲x^{۲}}{۲\sqrt{x}}=-۴x^{۳}+۲x^{۲}+۲x$

$f(\frac{1}{۲})\quad\frac{\sqrt{\frac{1}{۲}}}{-\frac{1}{۲}+\frac{1}{۲}+1}=\boxed{\frac{\sqrt{۲}}{۲}}$

$۶\cancel{x^{۳}}-\cancel{x^{۲}}+x=-۴x^{۳}+\cancel{۲x^{۲}}+۲x$

$۱۰x^{۳}-۳x^{۲}-x=۰$

$x(۱۰x^{۲}-۳x-1)=۰$ $\quad\frac{۳+۷}{۲۰},\ \frac{۳-۷}{۲۰}$

$۹-۴(۱۰)(-1)=$ $\quad\boxed{\frac{1}{۲}}$ ✓ $\quad\boxed{-\frac{1}{۵}}$ X

۲

$\boxed{۱۰}$

$$f(x) = (x[x])^{۳}$$

$$g(x) = \frac{1}{\sqrt{x^{۲}-1}}$$

$$fog = \left(\frac{1}{\sqrt{x^{۲}-1}}\left[\cancel{\frac{1}{\sqrt{x^{۲}-1}}}\right]\right)^{۳}$$

$$۲^{+}$$

$$\frac{\sqrt{۵}}{۲}^{-}$$

$$(fog)' \longrightarrow \left(\frac{۲}{\sqrt{x^{۲}-1}}\right)^{۳} = ۳\left(\frac{۲}{\sqrt{x^{۲}-1}}\right)^{۲} \times \frac{-\frac{۲x}{\cancel{۲}\sqrt{\cancel{x^{۲}-1}}} \times ۲}{x^{۲}-1}$$

$$\textcircled{۲}$$

$$\frac{-۲ \times \frac{\sqrt{۵}}{\cancel{۲}} \times \cancel{۴}}{\frac{1}{۴}}$$

$$\frac{۵}{۴} - \frac{۴}{۴} \quad \frac{1}{۴}$$

$$\frac{۳ \times ۱۶ \times -۸\sqrt{۵}}{-۴۸\sqrt{۵}} \checkmark = \textcircled{۸}$$

۳

$x=۱ \longrightarrow y=\frac{۲+m}{۴}$

$$y'=\frac{(\overset{m+۲}{\cancel{۲x+m}})(\overset{۴}{\cancel{x+۳}})-(\overset{m+۲}{\cancel{x^۲+mx+۱}})}{\underset{۴^۲}{(\cancel{x+۳})^۲}}=\frac{۳m+۶}{۱۶}=\frac{۳}{۴}\rightsquigarrow \boxed{m=۲}$$

$$y=\frac{۳}{۴}x+\frac{n}{۴}\rightsquigarrow\frac{۳+n}{۴}=\frac{۲+۲}{۴}\rightsquigarrow\boxed{n=۱}$$

$\Big\}\ \boxed{m+n=۳}$

۴

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

$\hookrightarrow -\sin x \xrightarrow{\text{مشتق}} (۳g-f)'(x)=-\cos x \rightsquigarrow -\cos(\frac{۵\pi}{۳})=\boxed{-\frac{۱}{۲}}$

۵

$$g'(x)\times f'(g(x))=(fog)'(x)$$

$$x>0 \longrightarrow g(x)=\frac{۱}{۲x^۵}\longrightarrow f(x)=\frac{-۱}{\sqrt[۵]{۲x}}\rightsquigarrow fog(x)=\frac{-۱}{\sqrt[۵]{۲(\frac{۱}{۲x^۵})}}$$

$$fog(x)=-x\longrightarrow fog'(x)=\boxed{-۱}\rightsquigarrow fog'(\sqrt[۵]{۳})=۱$$