Subject:

Year: Month: Day: آیرین غضنفری سواد کوهی Page:( )

$g(x)=f(\tan x+\sqrt{2}\cos x)\ ,\ g'(\frac{\pi}{4})=\sqrt{3}$ —1

$g'(x)=f'(\tan^2 x+\sqrt{2}\cos x)\times(\underbrace{2\tan(1+\tan^2 x))-\sqrt{2}\sin x}_{3})$

$g'(\frac{\pi}{4})=f'(1+1)\times 3 \qquad f'(2)=\frac{\sqrt{3}}{3}$

$g(x)=\frac{2}{2-\cos x}\ ,\ f(x)=\frac{8+\cos^3 x}{4-\cos^2 x} \qquad f'(\frac{7}{3}\pi)-2g'(\frac{7}{3}\pi)\to(f-2g)'(\frac{7}{3}\pi)$ —2

$f(x)=\frac{(2+\cos x)(4+\cos^2 x-2\cos x)}{(2-\cos x)(2+\cos x)}=\frac{4+\cos^2 x-2\cos x}{2-\cos x} \qquad (f-2g)(x)=\frac{\cos^2 x-2\cos x}{2-\cos x}$

$(f-2g)(x)=\frac{\cos(\cos-2)}{2-\cos}=-\cos \xrightarrow{\text{مشتق}} (f-2g)'=\sin x \xrightarrow{x=\frac{7}{3}\pi} -\frac{1}{2}$

$f'_+(\frac{3}{2})=(2x-3)\sqrt{ax} \xrightarrow{\text{مشتق}} 2\sqrt{ax}+(2x-3)\frac{a}{2\sqrt{ax}}$ —3

$f'_-(\frac{3}{2})=+(-2x+3)\sqrt{ax} \longrightarrow -2\sqrt{ax}+(-2x+3)\frac{a}{2\sqrt{ax}} \qquad \Delta f'=8\sqrt{ax}$

$8\sqrt{\frac{3}{2}a}=2\sqrt{6} \qquad 16\,\frac{3}{2}a=6 \qquad a=\frac{1}{4}$

$y=ax+2 \nearrow f(4)=-4a+2 \qquad -5a+2=-1 \qquad a=\frac{3}{5}$ —4

$\searrow f'(4)=-a$

$f'(4)=-0.6$

$7y=x+5 \xrightarrow{y=x} 6x=5 \to x=\frac{5}{6}$ —5

$7y=x+5 \to y=\frac{x}{7}+\frac{5}{7} \to y'=\frac{1}{7}$

$y=\frac{ax-1}{3x+1}\to y'=\frac{a+3}{(3x+1)^2}=\frac{1}{7} \xrightarrow{x=\frac{5}{6}} a=-\frac{5}{4}$

مختصات نقطه $\to (2,0) \to 8+2a-b=0 \to b=-16$ —6

شیب $\to 0 \to 3x^2+a=0 \to -12=a$

Subject: Page:( )

Year: Month: Day:

-۷

-۸

$$\frac{\sqrt{x}+1}{\sqrt{x}-1}=y \rightarrow \sqrt{x}=+\frac{+y+1}{y-1} \rightarrow x=\left(\frac{y+1}{y-1}\right)^2 \rightarrow y=\left(\frac{x+1}{x-1}\right)^2$$

$$y=\frac{x^2+2x+1}{x^2-2x+1} \rightarrow y'=\frac{-4x^2+4}{(x^2-2x+1)^2} \xrightarrow{x=2} \underline{y'=-12}$$

-۹

$$f(x)=(x^2+1)^3(ax+1) \quad \begin{cases} \xrightarrow{x=0} 1 \\ \xrightarrow{x=-1} 8(-a+1) \end{cases} \qquad \frac{1-(-8a+8)}{1}=8a-7=-11$$

$$a=-\frac{1}{2}$$

$$f'(1)=3(x^2+1)^2(2x)\left(-\frac{1}{2}x+1\right)+-\frac{1}{2}(x^2+1)^3=8$$

-۱۰

$$y=\sin x\cos 2x \quad \begin{cases} \xrightarrow{x=\frac{\pi}{4}} y=\frac{\sqrt{2}}{2}\times 0=0 \\ \xrightarrow{x=\frac{\pi}{2}} y=1\times -1=-1 \end{cases} \Longrightarrow \text{آهنگ متوسط}=\frac{-1-0}{\frac{\pi}{2}-\frac{\pi}{4}}=\frac{-1}{\frac{\pi}{4}} \quad ①$$

$$y=\sin^2 x-\cos^2 x \quad \begin{cases} \xrightarrow{x=\frac{\pi}{4}} \frac{1}{2}-\frac{1}{2}=0 \\ \xrightarrow{x=\frac{\pi}{2}} 1-0=1 \end{cases} \rightarrow \frac{1-0}{\frac{\pi}{4}}=\frac{4}{\pi} \quad ②$$

$$\frac{①}{②}=-1$$