نام و نام خانوادگی ...علی بساطی... پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس ...یازدهم ریاضی A...

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$$g'(x) = \left(2\tan x \times \frac{1}{\cos^2 x} - \sqrt{2}\sin x\right) \times f'(A) \Rightarrow x = \frac{\pi}{4}$$

$$\Rightarrow g'\left(\frac{\pi}{4}\right) = (2 \times 2 - 1) \times f'(2) = \sqrt{3} \Rightarrow f'(2) = \frac{\sqrt{3}}{3}$$

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

$$\underbrace{f(x) - 2g(x)}_{h'(x)} = \frac{\cos^2 x - 2\cos x + 4 - 4}{2-\cos x} = \frac{\cos^2 x - 2\cos x}{2-\cos} = -\cos$$

$$h'(x) = \sin x \Rightarrow x = \frac{7\pi}{6} \Rightarrow \sin\frac{7\pi}{6} = \boxed{-\frac{1}{2}}$$

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$$x > \frac{3}{4}:\ (4x-3)\sqrt{ax} \xrightarrow{\text{مشتق}} 4\sqrt{ax}$$

$$x < \frac{3}{4}:\ \underbrace{-(4x-3)\sqrt{ax} \xrightarrow{\text{مشتق}} -4\sqrt{ax}}_{\text{۴x-۳ عامل صفر شونده}}$$

$$x = \frac{3}{4} \Rightarrow \frac{4\sqrt{3a}}{2} = 2\sqrt{3a} = m_1, \quad -\frac{4\sqrt{3a}}{2} = -2\sqrt{3a} = m_2$$

$$\Rightarrow |m_2 - m_1| = 2\sqrt{6} \Rightarrow 2 \times 2\sqrt{3a} = 2\sqrt{6} \Rightarrow \boxed{a = \frac{1}{2}}$$

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$$y = -ax + 2 \Rightarrow \left.\begin{matrix} f'(4) = -a \\ f(4) = -4a + 2 \end{matrix}\right\} f(4) + f'(4) = -5a + 2 = -1$$

$$\Rightarrow -5a = -3 \Rightarrow a = \frac{3}{5} \Rightarrow \boxed{f'(4) = -\frac{3}{5}}$$

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$$\frac{x+5}{7} = \frac{ax-1}{3x+1} \Rightarrow 3x^2 + 16x + 5 = 7ax - 7 \Rightarrow 3x^2 + (16-7a)x + 12 = 0$$

$$\Rightarrow x^2 + \frac{16-7a}{3}x + 4 \xrightarrow{x>0} \frac{16-7a}{3} = -4 \Rightarrow 16 - 7a = -12 \Rightarrow 7a = 28$$

$$\boxed{a = 4}$$

$f'(x)=3x^2+a \Rightarrow f'(2)=0 \Rightarrow 12+a=0 \Rightarrow a=-12 \Rightarrow f(x)=x^3-12x-b$ $\Rightarrow f(2)=0 \Rightarrow 8-24-b=0 \Rightarrow b=-16$ $\Rightarrow \boxed{b-a=-16+12=-4}$	۶
$f'(x)=n\times 2x\times \sin^{n-1}(x^2)\cos(x^2) \Rightarrow \lim\limits_{x\to 0} \frac{f\times f'}{(1-\cos x)^m}=\frac{n\times 2x\times \cos x^2\times \sin^{n-1}(x^2)}{(1-\cos x)^m}$ هم‌ارزی $\Rightarrow \frac{n\times 2x(x^2)^{n-1}}{\frac{x^{2m}}{2^m}} \Rightarrow \frac{(2n\times 2^m)(x^{4n-1})}{x^{2m}} \Rightarrow (1)\ 2m=4n-1$ $(2)\ n\times 2^{m+1}=2^{5/5} \Rightarrow n=2 \Rightarrow m+2=5/5 \Rightarrow m=3/5 \Rightarrow \boxed{2m=7}$ $\Rightarrow 7=4n-1 \Rightarrow \boxed{n=2\ \checkmark} \Rightarrow 2m+n=7+2=\boxed{9}$	۷
$f^{-1}(x)=\left(\frac{x+1}{x-1}\right)^2 \Rightarrow (f^{-1})'=2\left(\frac{-2}{(x-1)^2}\right)\left(\frac{x+1}{x-1}\right) \Rightarrow x=2$ $(x>0)$ $\Rightarrow = 2\times\left(\frac{-2}{1}\right)(3)=-12$	۸
$\frac{f(0)-f(-1)}{0-(-1)}=\frac{8a-7}{1}=-11 \Rightarrow a=\frac{-1}{2} \Rightarrow f(x)=(x^2+1)^3\left(-\frac{1}{2}x+1\right)$ $f'(x)=6x(x^2+1)^2\left(-\frac{1}{2}x+1\right)-\frac{1}{2}(x^2+1)^3$ $\Rightarrow f'(1)=6\times 4\times \frac{1}{2}-\frac{1}{2}\times 8=12-4=\boxed{8}$	۹
$f(x)=y=\sin x\cos 2x=\sin x(1-2\sin^2 x)=-2\sin^3 x+\sin x$ $g(x)=y=\sin^4 x-\cos^4 x=2\sin^2 x-1 \Rightarrow \frac{\frac{f(\frac{\pi}{2})-f(\frac{\pi}{4})}{\frac{\pi}{4}}}{\frac{g(\frac{\pi}{2})-g(\frac{\pi}{4})}{\frac{\pi}{4}}}=\frac{f(\frac{\pi}{2})-f(\frac{\pi}{4})}{g(\frac{\pi}{2})-g(\frac{\pi}{4})}$ $f(\frac{\pi}{2})=-2+1=-1,\ f(\frac{\pi}{4})=-\frac{\sqrt{2}}{2}+\frac{\sqrt{2}}{2}=0$ $g(\frac{\pi}{2})=2-1=1,\ g(\frac{\pi}{4})=1-1=0$ $\Rightarrow \frac{-1-0}{1-0}=$ $\boxed{-1}$ برابر	۱۰