نام و نام خانوادگی ...رها بیت‌اللهی...................... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

$g(\frac{\pi}{4}) = f(2) \rightarrow \quad g'(x) = 2\tan x(1+\tan^2 x) + (\sqrt{2}x - \sin x)\, f'(\tan^2 x + \sqrt{2}\cos x)$

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

$f'(2) = \frac{\sqrt{3}}{3}$

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

$f'(x) - 2g'(x) = (\frac{f}{g})' \times g^2(x) - g^2(x) = (\frac{4-2\cos x+\cos^2 x}{2})' \times \frac{16}{(2+\frac{\sqrt{3}}{2})^2} - \frac{\sin x}{(2+\frac{\sqrt{3}}{2})^2}$

$= \frac{2\sin x + (2\cos x \times -\sin x)}{4} \times \frac{\cancel{16}\ 4}{(2+\frac{\sqrt{3}}{2})^2} + \frac{\frac{\sqrt{3}}{2}}{(2+\frac{\sqrt{3}}{2})^2} \rightarrow \frac{\frac{-8\sqrt{3}+\sqrt{3}}{2}}{(2+\frac{\sqrt{3}}{2})^2} = \frac{-7\sqrt{3}}{2(2+\frac{\sqrt{3}}{2})^2}$

۲

	$\frac{3}{4}$	
$(3-4x)\sqrt{ax}$	$(4x-3)\sqrt{ax}$	

$\rightarrow f'_+(x) = 4\sqrt{ax} + \frac{a(4x-3)}{2\sqrt{ax}}$

$f'_-(x) = -4\sqrt{ax} + \frac{(3-4x)a}{2\sqrt{ax}}$

$8\sqrt{\frac{3}{4}a} = 2\sqrt{6}$

$4\sqrt{\frac{3}{4}a} = \sqrt{6} \rightarrow \sqrt{12a} = \sqrt{6} \rightarrow a = \frac{1}{2}$

۳

$\left.\begin{array}{l} f'(4) = -a \\ f(4) = -4a+2 \end{array}\right\} f'(4) + f(4) = -5a+2 = -1 \rightarrow a = \frac{3}{5}$

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

۴

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

$f'(x) = \frac{+a+3}{(3x+1)^2} \rightarrow \frac{a+3}{(3x+1)^2} = \frac{1}{7} \rightarrow (3x+1)^2 = 7(a+3) \rightarrow 3x+1 = \sqrt{7a+21}$

$\frac{ax-1}{3x+1} = \frac{1}{7}x + 5 \rightarrow \frac{(a-15)x-6}{3x+1} = \frac{1}{7}x$

$((a-15) - \sqrt{7a+21})x = 6$

$(3x+1)x = (a-15)x - 6$

$\sqrt{7a+21}$

۵

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$3x^2+a \to 12+a=0 \to a=-12 \to y=0$ $8+24-b=0 \to b=32$ $b-a=32-(-12)=44$	۶
	۷
$x=\frac{\sqrt{y}+1}{\sqrt{y}-1}$	۸
$\frac{f(0)-f(-1)}{1}=-11 \to 1-8(1-a)=-11 \to 1-a=\frac{12}{8}=\frac{3}{2} \to a=-\frac{1}{2}$ $f'(-2a)=f'(1)=\underbrace{3(x^2+1)^2 2x(-\frac{1}{2}x+1)+(-\frac{1}{2})(x^2+1)^3}_{12-4=8}$	۹
$\frac{\sin\frac{\pi}{2}\cos\pi-\sin\frac{\pi}{4}\cos\frac{\pi}{2}}{\sin^4\frac{\pi}{2}-\cos^4\frac{\pi}{2}-\sin^4\frac{\pi}{4}+\cos^4\frac{\pi}{4}}=\frac{-1}{1}=-1$	۱۰