آیدا نامداری
دوازدهم دفتر B
۲۳ تکلیف

۱

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

$1+1 \quad \frac{\sqrt{2}}{2} \quad -\sqrt{2}\times\frac{\sqrt{2}}{2} \quad$ ۱۸

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

$1+2 \quad 4+(-1)$

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

۲

۲

$$f(x) = \frac{8+\cos^3}{4-\cos^2} = \frac{\cancel{(2+\cos)}(4+\cos^2 - 2\cos)}{\cancel{(2+\cos)}(2-\cos)} \qquad f'(x) \quad \frac{(2\cos + 2\sin)(2-\cos) - (\sin)(2\cos^2 \ldots)}{(2-\cos)^2}$$

$$g(x) = \frac{2}{2-\cos x} \qquad \frac{-(\sin x)\times 2}{(2-\cos)^2} \qquad \frac{1}{} = \frac{1}{\frac{25}{16}} = \frac{16}{25} \qquad (-1-\sqrt{3})(2+\frac{\sqrt{3}}{2}) - (-\frac{1}{2})($$

$$\frac{\frac{6+3\sqrt{3}}{2+\sqrt{3}}}{3} - \frac{8\sqrt{3}}{9} \qquad 2-\frac{3}{4} \qquad \frac{8}{4}-\frac{3}{4} = \frac{5}{4}$$

$$\sin\frac{7\pi}{6} = -\frac{1}{2} \qquad \cos\frac{7\pi}{6} = -\frac{\sqrt{3}}{2}$$

۲

۳

$$\frac{3}{4}^{+} \quad (4x-3)\sqrt{ax} \qquad 4\times\sqrt{ax} + \frac{a}{2\sqrt{ax}}\times 4x-3 \qquad \frac{8ax + 4ax - 3a}{2\sqrt{ax}}$$

$$\frac{3}{4}^{-} \quad (-4x+3)\sqrt{ax} \qquad -4\times\sqrt{ax} + \frac{a}{2\sqrt{ax}}\times(-4x+3) \qquad \frac{-8ax - 4ax + 3a}{2\sqrt{ax}}$$

$$\frac{-12ax + 3a}{2\sqrt{ax}} - \frac{12ax - 3a}{2\sqrt{ax}} \qquad \frac{-24ax + 6a}{2\sqrt{ax}} = 2\sqrt{6}$$

$$-\cancel{24}^{6}a\times\frac{3}{\cancel{4}} \qquad \frac{-18a+6a}{2\sqrt{\frac{3}{4}a}} \qquad \frac{-12a}{2\sqrt{\frac{3}{4}a}} = 2\sqrt{6}$$

$$a\times\frac{3}{4}$$

$$24\sqrt{\frac{9}{2}a} = 12a \qquad \sqrt{\frac{3}{\cancel{4}}a\times\cancel{4}^{2}}$$

$$16\times\frac{9}{2}\cancel{a} = 144a^2 \qquad a = \frac{72}{144} = \frac{1}{2}$$

۲

۴

$$y = 2 - ax \qquad f'(4) = -a \qquad f'(4) = -\frac{3}{5}$$

$$2 - 4a + (-a) = -1$$

$$2 - 5a = -1$$

$$-5a = -3 \qquad a = \frac{3}{5}$$

$4 \quad 2-4a$

۲

Scanned with CamScanner

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

$\frac{ax-1}{3x+1} = \frac{5}{7} + \frac{x}{7}$

$\frac{a(3x+1) - 3(ax-1)}{(3x+1)^2} = \frac{1}{7}$

$7ax - 7 = (5+x)(3x+1)$

$7ax - 7 = 15x + 5 + 3x^2 + x$

$\frac{\cancel{3ax} + a - \cancel{3ax} + 3}{(3x+1)^2} = \frac{1}{7}$

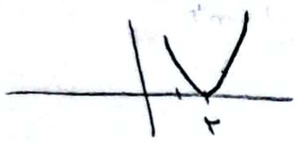
$3x^2 + (16-7a)x + 12$

$(16-7a)^2 - 4(3)(12) = 0$

$16 - 7a = 12 \qquad -7a = -4 \qquad a = \frac{4}{7}$ غ ق ق

$16 - 7a = -12 \qquad -7a = -28 \qquad \boxed{a = 4}$

2



12

$8 - 24 - b = 0 \qquad b = -16$

$-16 + 12 = -4$

6

2

$3x^2 + a \qquad 12 + a = 0 \qquad a = -12$

7

$\frac{f'(x)f'(x) + f''(x) \times f(x)}{n(1-\cos x)^{n-1}} = 32\sqrt{2} \qquad f' = n(\sin(x^2))^{n-1}$

0/5

8

$f'(x) \times f(x) = 0$

2

$\frac{\sqrt{y}+1}{\sqrt{y}-1} = x \qquad x\sqrt{y} - x = \sqrt{y} + 1$

$x\sqrt{y} - \sqrt{y} = x + 1 \qquad \sqrt{y} = \frac{x+1}{x-1}$

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

$2\left(\frac{x+1}{x-1}\right) \times \frac{\overset{-2}{1(x-1)-(x+1)}}{(x-1)^2}$

$6 \times -2 = -12$

9

$\frac{f(0) - f(-1)}{+1} = -11 \qquad 1 - (8)(-a+1) \qquad (1 + 8a - 8)$

$8a - 7 = -11 \qquad 8a = -4 \qquad a = -\frac{1}{2}$

1/5

$x = 1 \qquad \left(3(\cancel{x^2+1})^2 \times 2x\right)\left(-\frac{1}{2}x + 1\right) + \left(-\frac{1}{2}\right)(\cancel{x^2+1})^3$

$\cancel{12 \times 2}$

$24 \times 1 + -4 = 20$

$\boxed{\text{ب}}$

$$\frac{f(\frac{\pi}{۲}) - f(\frac{\pi}{۴})}{\frac{\pi}{۴}} = \frac{۱\times -۱ - \frac{\sqrt{۲}}{۲}\times ۰}{\frac{\pi}{۴}} = -\frac{۴}{\pi}$$

$$\frac{f(\frac{\pi}{۲}) - f(\frac{\pi}{۴})}{\frac{\pi}{۴}} = \frac{۱ - ۰}{\frac{\pi}{۴}} = \frac{۴}{\pi}$$

$$\frac{-\frac{۴}{\pi}}{\frac{۴}{\pi}} \quad -۱$$

ب

$$\sin^۴ - \cos^۴ \to (\cancel{\sin^۲ + \cos^۲})(\sin^۲ - \cos^۲) = -\cos ۲x$$

$-\cos \pi$

$\cos \frac{\pi}{۲}$

Scanned with CamScanner

۷

$$\lim_{x\to 0}\frac{\sin^n(x^2)\times 2x\sin^{n-1}(x^2)\times\cos x^2}{(2\sin^2\frac{x}{2})^m}\ \xrightarrow{\text{هم‌ارزی}}\ \lim_{x\to 0}\frac{(x^2)^n\times n\times(x^2)^{n-1}\times 2x}{(2(\frac{x}{2})^2)^m}=\frac{(x)^{2n+2n-2+1}\times 2n}{(x)^{2m}\times\frac{1}{2}}$$

$$=\frac{2nx^{4n-1}}{\frac{1}{2^m}\times x^{2m}}=2^{m+1}\times n\times x^{4n-2m-1}\ \to\ 4n-2m-1=0\ \to\ n=\frac{2m+1}{4}$$

$$\to\ 2^{m+1}\times\frac{2m+1}{4}=32\sqrt{2}\ \to\ m=\frac{7}{2},\ n=2\ \to\ 2m+n=9$$

۹

$$\frac{f(0)-f(-1)}{0-(-1)}=\frac{1-8(-a+1)}{1}=8a-7=-11\ \to\ 8a=-4\ \to\ \boxed{a=-\frac{1}{2}}$$

$$f'(x)=3(x^2+1)^2(2x)(ax+1)+a(x^2+1)^3\ \xrightarrow{-2a=1}\ f'(1)=3(2)^2(2)(\frac{1}{2})+-\frac{1}{2}(2)^3$$

$$f'(1)=12-4=8$$