

۲. انجین

مشیب ذبا راه شده احسا و کنیم

① $\frac{a-1}{a-1} = \frac{a}{a}$

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① $\frac{r-1}{r+1} = \frac{1}{r}$ عبرت $\frac{1}{r}(r)+b=r \Rightarrow b=\frac{r}{r} \Rightarrow y = \frac{r}{r} + \frac{r}{r}$

② $\frac{1}{r}x + \frac{r}{r} = \sqrt{ax-1} \rightarrow x+r = r\sqrt{ax-1} \rightarrow 9(ax-1) = x^2 + 2rx + r^2$

③ $x^2 + (-9a+r)x + r^2 = 0 \xrightarrow{\Delta=0} (1-9a)r^2 = 1 \Rightarrow$

④ $a \rightarrow \frac{r}{9} \times \rightarrow f(a) = r$

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① $y = \frac{x^2+mx+1}{x+r} \xrightarrow{\text{مشتق با استفاده از}}$ $y' = \frac{x^2+5x+r^2m-1}{(x+r)^2} = \frac{r}{r}$

② $x=1 \rightarrow \frac{r+r^2m}{r} = \frac{r}{r} \Rightarrow m=1$ I

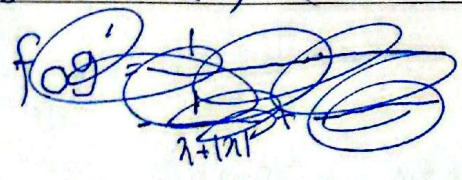
I, II $\Rightarrow f = r+h \Rightarrow h=1$
 $m+h=r$

③ II \rightarrow نقطه مشیب ذبا (مشتق) \rightarrow $\frac{1}{1}$

① $f(x) = \frac{(r-\sin x)(9+\sin^2 x+r^2 \sin x)}{\sin x+r} = \sin x+r \rightarrow f'(x) = \cos x \rightarrow \cos(\frac{\pi}{3}) = \frac{1}{2}$

② $g(x) = \frac{(r-\sin x)(r+\sin x)}{(\sin x+r)^2} \rightarrow g'(\frac{\pi}{3}) = \frac{-r}{(9+\sqrt{3}-r^2\sqrt{3})} = -\frac{r}{r}$

$= -\frac{1}{(9+\sqrt{3}-r^2\sqrt{3})}$ $r g'(\frac{\pi}{3}) - f'(\frac{\pi}{3}) = \frac{r}{(9+\sqrt{3}-r^2\sqrt{3})} - \frac{1}{2}$



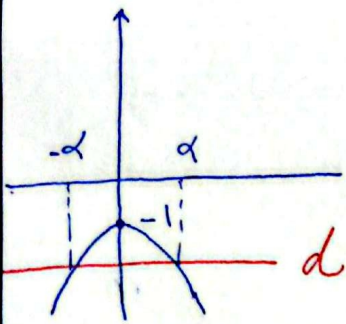
$g(x) = \frac{1}{r^2 x^2}$
 $f(x) = \frac{1}{\sqrt{rx}}$
 $\Rightarrow f \circ g = \frac{1}{\sqrt{r(\frac{1}{r^2 x^2})}} = -x$

$\Rightarrow (f \circ g)'(\sqrt{r}) = -1$

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① $g(x) = \frac{f(x) - 1}{x} \rightarrow \lim_{x \rightarrow 0} g(x) = \lim_{x \rightarrow 0} \frac{f(x) - 1}{x}$

② $\lim_{x \rightarrow 0} g(x) = f'(0) \rightarrow f'(x) = \lim_{x \rightarrow 0} \frac{\cos x (\sin x + 1) - \cos x (\sin x - 1)}{(\sin x + 1)^2}$
 $= \frac{f \cos x (\sin x - 1)}{(\sin x + 1)^2} \xrightarrow{x=0} \frac{f \times (-1)}{1} = -f$



مشق در دو نقطه α و $-\alpha$ باید قریب هم دو سلف باشند

① $y' = f(x) \Rightarrow \frac{d}{dx} (x+1) = 1 \Rightarrow \frac{1}{x+1} \Rightarrow \frac{1}{-\alpha+1} \Rightarrow \frac{1}{-\alpha}$
 ② $f \alpha^r = 1 \Rightarrow \alpha^r = \frac{1}{f}$
 $d = \alpha^r + 1 = \frac{1}{f} + 1$

① $A \left| \frac{n}{\sqrt{n}} \right| \Rightarrow \text{شبه فلز} = f'(x) = \frac{\sqrt{x}}{(-2x^2 + x + 1)x}$

جواب سوال 9

② $-2x^2 + x + 1 = t \rightarrow \frac{\sqrt{x}}{xt} = \frac{1}{\sqrt{x}} t - \sqrt{x} \times (-2x + 1)$

③ $\log_2 (x^2 - 2x - 1) = 0 \rightarrow x^2 - 2x - 1 = 1 \rightarrow x^2 - 2x - 2 = 0 \rightarrow x = \frac{2 \pm \sqrt{4 + 8}}{2} = \frac{2 \pm \sqrt{12}}{2} = 1 \pm \sqrt{3}$

$\lim_{n \rightarrow \infty} \frac{\sqrt{n} (n^2 + 3)}{n} = \frac{1}{\sqrt{n}} (n^2 + 3) + \frac{3}{\sqrt{n}}$

جواب سوال 8

$\sqrt{n} (n^2 + 3) = \sqrt{n} (n^2 + 3) + \frac{3}{\sqrt{n}}$
 $\frac{3}{\sqrt{n}} = \frac{3}{\sqrt{n}}$
 $n^2 - 2n + 3 = 0 \rightarrow \frac{1 \pm \sqrt{1 - 12}}{2} = \frac{1 \pm \sqrt{-11}}{2}$

① $f'(g(x)) = g'(x) \times f'(g(x))$

② $g'(x) = \frac{1}{x} \times 2x \times \frac{1}{(x^2 - 1)\sqrt{x^2 - 1}} = -\frac{2}{\sqrt{x^2 - 1}}$
 $f'(g(x)) = 2x^2$

③ $\frac{2x^2 \times (-\frac{2}{\sqrt{x^2 - 1}})}{2x^2} = -\frac{2}{\sqrt{x^2 - 1}}$