

$d = ax^2 + 2ax + 1 \Rightarrow 2a + 1 = d$

$x = \frac{d-1}{2a} \Rightarrow a = \frac{d-1}{2} = f'(x)$

$\frac{x-1}{x-(-1)} = \frac{1}{2} \Rightarrow \sqrt{Ax-1} = \frac{A+1}{2} \Rightarrow x \geq \frac{1}{A}$

$d: y = \frac{1}{2}x + \frac{1}{2}$

$9A^2 - 9 = A^2 + 1A + 14$

$A^2 + (1-9A)A + 25 = 0 \Rightarrow (1-9A)^2 - 100 = 0$

$\Delta = 0 \rightarrow$ ملائمت! $1-9A = \pm 10 \Rightarrow A = \frac{11}{9}$ or $A = \frac{-9}{9} = -1$

$\sqrt{2a-1} \Rightarrow \sqrt{9} = 3$

$f(x) = f(x)$ زیر اذکار غ ق ق \rightarrow منفی

$f(x) = \frac{x-2}{x} = \frac{(x+m)x - 2 - m}{x}$

$1 + 5m - 2 - m = 1 \Rightarrow 4m = 2 \Rightarrow m = \frac{1}{2}$

$m + n = 1 + 2 = 3$

$\frac{(x+1)^2}{x+3} = 1 \Rightarrow x+3 = x+1 \Rightarrow 3=1$ (Incorrect)

$\frac{(x+1)^2}{x+3} = 1 \Rightarrow x^2 + 2x + 1 = x + 3 \Rightarrow x^2 + x - 2 = 0 \Rightarrow (x+2)(x-1) = 0$

$f(x) = \frac{(x-\sin)(\sin^2 + x\sin + 1)}{(x-\sin)(x+\sin)}$

$x = \frac{\pi}{2} \Rightarrow \cos(\frac{\pi}{2}) = 0 \Rightarrow \frac{-1}{2}$

$(fg-f')(x) = \frac{1 - \sin^2 - x\sin - 1}{x+\sin} = \frac{-\sin^2 - x\sin}{x+\sin} = (-\sin)' = -\cos$

$g(x) = \frac{1}{\sqrt{x}}$

$f(x) = -\frac{1}{\sqrt{x}}$

$f \circ g: \frac{-1}{\sqrt{\frac{1}{x}}} = -x$

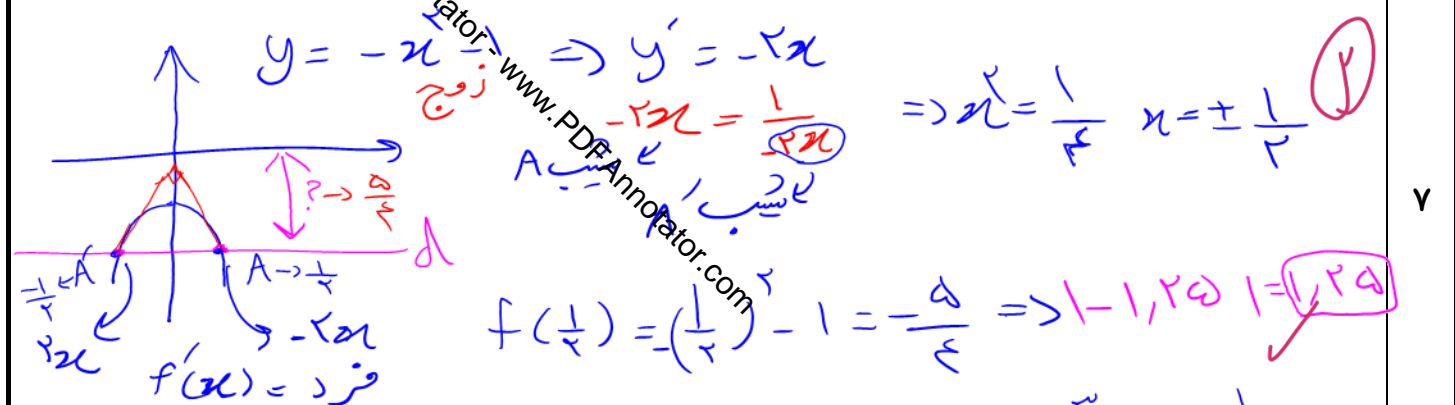
$(f \circ g)'(x) = -1$

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$$\lim_{x \rightarrow 0} \frac{f(x) - 1}{x} = \frac{0}{0} \Rightarrow \text{H.o.P} \lim_{x \rightarrow 0} f'(x) = \left[\left(\frac{-1+x}{1+x} \right)^2 \right]$$

$$y(x) = \frac{f(x) - 1}{x} \quad y(-1) = \left(\frac{-1}{1} \right)^2 = \boxed{\frac{1}{4}} \checkmark$$

$\sin x \sim x$
 $x \rightarrow 0$



$$f(x) = 12x^{\frac{3}{2}} + 4x^{\frac{1}{2}} \rightarrow f'(x) = 2 \cdot 12x^{\frac{1}{2}} + 3x^{-\frac{1}{2}}$$

$$d = \frac{12x^{\frac{3}{2}} + 4x^{\frac{1}{2}}}{x} = 12x^{\frac{1}{2}} + 4x^{-\frac{1}{2}}$$

$$12x^{\frac{3}{2}} - 3x^{-\frac{1}{2}} = \frac{1}{2} (12x^2 - 3) = 0 \Rightarrow x = \frac{1}{4} \rightarrow 2\sqrt{2} + 4\sqrt{2} = \boxed{6\sqrt{2}} \checkmark$$

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$\sqrt{x} = t$
 $d = 2x$

$$-2xt^2 + t^2 + 1 = 0 \Rightarrow t^2 = \frac{1}{2} \Rightarrow t = \frac{1}{\sqrt{2}} \Rightarrow x = \frac{1}{2}$$

$$f\left(\frac{1}{2}\right) = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} + 1 = \boxed{\frac{1}{\sqrt{2}}}$$

$$g\left(\frac{\sqrt{5}}{2}\right) = 2 \Rightarrow (f \circ g)\left(\frac{\sqrt{5}}{2}\right) = g\left(\frac{\sqrt{5}}{2}\right) \times f'_+(x)$$

$$\frac{1}{2} = -\frac{x}{\sqrt{x^2 - 1}} \Rightarrow x = -\frac{1}{2} \Rightarrow \frac{1}{2} = -\frac{1}{\sqrt{5}} \Rightarrow \boxed{1} \checkmark$$

$x = 2 \rightarrow 2 \leq x \leq 99$
 $[2+] = 2 \quad f(x) = 2x^2$
 $f(x) = 12x^2$

$\star f(g(\frac{\sqrt{5}}{2})) \Rightarrow g(\frac{\sqrt{5}}{2}) = \frac{1}{2} = 2^+ \Rightarrow f'_+(x)$