حدیث حسین پور   تکلیف ۲۲   صفحه ۱۳

۳) $\begin{cases} bx+c & x<a \\ \frac{1}{x} & x \geq a \end{cases}$ $\to b$, $\to \frac{-1}{x^2}$

$\begin{cases} ab+c = \frac{1}{a} \Rightarrow a^2b+ac=1 \\ b=\frac{-1}{a^2} \rightsquigarrow a^2b=-1 \end{cases}$ $\underline{ac=2}$

٤) $m>0 \xrightarrow{f'(x)} 0 = m(0)$!مثبت

$m<0 \xrightarrow{f'(x)} 0$

جمع متناظر m

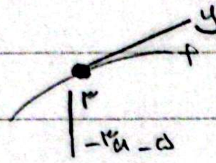
۵) $g'(-\sqrt[3]{2})f'(g(-\sqrt[3]{2})) = (f\circ g)' \Rightarrow (x)' = 1 \longrightarrow (f\circ g(-\sqrt[3]{2}))' = 1$

$x<0 \rightsquigarrow g(x) = \frac{1}{x^3+x^3}$ $(f\circ g) = \frac{1}{\sqrt[3]{\frac{1}{2x^3}+\frac{1}{2x^3}}} = \frac{1}{\sqrt[3]{\frac{1}{x^3}}} = x$

PAYCO

Subject:
Year : Month : Day : ( ) page : ( )

9) $y=-ax-5 \xrightarrow[x=3]{f(3)} y=-3a-5$



y شیب $\Rightarrow -a$

$f'(3)$

$f'(3)-f(3)=2$

$-a+3a+5=2$

$2a=-3 \quad a=\frac{-3}{2}$

$\frac{f(3)}{f'(3)} = \frac{-3\times\frac{-3}{2}-5}{-(-\frac{3}{2})} = \frac{\frac{9}{2}-5}{\frac{3}{2}} = \frac{\frac{9-10}{2}}{\frac{3}{2}} = \frac{1}{3}$

7) $(f\circ g)' = f'(g(x))\times g'(x)$

$g(\frac{3}{\sqrt{8}}) = \frac{1}{\sqrt[3]{\frac{9}{8}-1}} = 2$

$g'(\frac{3}{\sqrt{8}}) = \frac{\frac{-2x}{3\sqrt[3]{(x^2-1)^2}}}{\sqrt[3]{(x^2-1)^2}} = \frac{-2x}{3\sqrt[3]{(x^2-1)^4}} = \frac{-2\times\frac{3}{\sqrt{8}}}{3\sqrt[3]{(\frac{9}{8}-1)^4}} = \frac{-16}{\sqrt{2}} = -8\sqrt{2}$

$f(x) = (x[4+\frac{1}{2}])^2+1 = 16x^2+1 \rightarrow f'(2) = 32\times 2 = 64$

$\rightarrow f'(g(x))\times g'(x)$

$\frac{64\times -8\sqrt{2}}{-128\sqrt{2}} = 4$

8) $g'(x) = f'(x+1)+3f'(3x+10) \xrightarrow{x=-2} f'(-1)+3f'(4)$ → با توجه به دوره تناوب

$\frac{3}{2}+3\times\frac{3}{2} = \frac{12}{2} = 6$

$-1+5=4$

$f'(-1)=f'(4)=\frac{3}{2}$

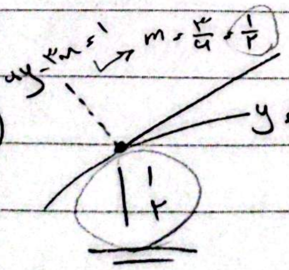
9) $\lim_{h\to 0} \frac{-2f(5-h)f'(5-h)+3f'(5-h)}{5h-2h} = \frac{-2f(5).f'(5)+3f'(5)}{5} = \frac{-2\times 2\times\frac{25}{12}+3\times\frac{25}{12}}{5} = \frac{\frac{-25}{12}}{5} = \frac{-5}{12}$

$5-2h$

$f(5) = 1\sqrt[3]{5+3} = 2$

$f'(5) = \sqrt[3]{x+3}+\frac{(x-4)}{3\sqrt[3]{(x+3)^2}} = 2+\frac{1}{12} = \frac{24+1}{12} = \frac{25}{12}$

10)



$\rightarrow m=-2$

$y=x^2-4x+5 \rightarrow 2x-4=-2$

$2x=2$

$x=1 \quad y=1-4+5=2$

Scanned with CamScanner