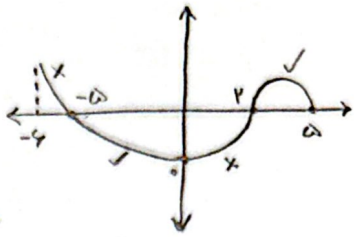
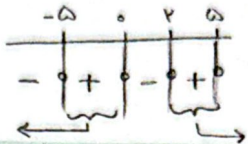
نام و نام خانوادگی : رها موسوی  پاسخنامه تشریحی تالیف شماره ۲  کلاس دهم دفتر A

۱

$y=\sqrt{xf(x)} \rightsquigarrow xf(x)\geq 0 \Rightarrow D_f=[-5,0]\cup[2,5]$



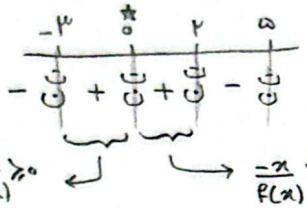




$xf(x)\geq 0$ ← → $xf(x)\geq 0$

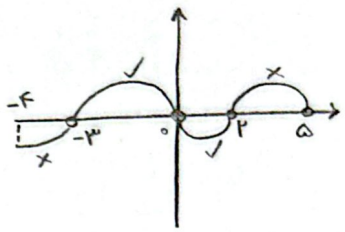
۲

$y=\sqrt{\frac{-x}{f(x)}} \rightsquigarrow \frac{-x}{f(x)}\geq 0 \Rightarrow D_f=(-3,0)\cup(0,2) \rightsquigarrow \{-2,-1,1\}$

شامل ۳ عدد صحیح




$\frac{-x}{f(x)}\geq 0$ ← → $\frac{-x}{f(x)}\geq 0$




۳

$f(x)-2f(2)=x^2-3x+4 \xrightarrow{x=2} -f(2)=2 \rightsquigarrow f(x)=x^2-3x \rightsquigarrow f(-2)=4+6=10$

۴

$$f(x)=\begin{cases} x-\sqrt{x+2} & ; x>2 \\ 2x+3 & ; x\leq 2 \end{cases} \Rightarrow f(f(5))+f(f(1))=f(2)+f(5)=7+2=9$$

$\rightarrow$ ** $f(5)=5-3=2$ , $f(1)=2+3=5$ , $f(2)=4+3=7$

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$f(x)=ax^2-bx+2 \rightsquigarrow f(x-1)-f(x)=6x+2 \rightarrow a(x-1)^2-b(x-1)+2-ax^2+bx-2=6x+2$

$\rightsquigarrow a+b-2ax=6x+2 \rightsquigarrow a=(-3), b=5 \Rightarrow a-b=-3-5=-8$

۶

$$f(x)=\frac{x^2+4x+5}{x^2+4x+7} \rightsquigarrow f(\sqrt{3}-2)=\frac{(\sqrt{3}-2)^2+4(\sqrt{3}-2)+5}{(\sqrt{3}-2)^2+4(\sqrt{3}-2)+7}=1-\frac{2}{7-1}=\boxed{\frac{2}{3}}$$

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$$f(x-\frac{1}{x})=\frac{x^4+1}{x^2},\ f(-3)=? \rightsquigarrow f(x-\frac{1}{x})=x^2+\frac{1}{x^2} \rightsquigarrow (x-\frac{1}{x})^2+2 \rightsquigarrow f(-3)=9+2=\boxed{11}$$

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$$g(x)=\sqrt{9-x^2} \rightsquigarrow 9-x^2\geq 0 \longrightarrow -3\leq x\leq 3$$

الف) $\frac{f}{g}=\left\{(2,\frac{0}{\sqrt{5}}),(1,\frac{-4}{2\sqrt{2}}),(0,\frac{2}{3})\right\} \Longrightarrow =\left\{(2,0),(1,-\sqrt{2}),(0,\frac{2}{3})\right\}$

ب) $\frac{g}{f}=\left\{(2,\frac{\sqrt{5}}{0}),(1,\frac{2\sqrt{2}}{-4}),(0,\frac{3}{2})\right\} \Longrightarrow =\left\{(1,-\frac{\sqrt{2}}{2}),(0,\frac{3}{2})\right\}$

۹

الف) $2f(x)=\left\{(2,2),(3,1),(-5,4),(1,-4)\right\}$ ب) $f(x)+1=\left\{(2,2),(3,5),(-5,3),(1,-1)\right\}$

ج) $3f^2(x)+1=\left\{(2,4),(3,49),(-5,13),(1,13)\right\}$ د) $f(2x)=\left\{(1,1),(\frac{3}{2},4),(\frac{-5}{2},2),(\frac{1}{2},-4)\right\}$

$(\frac{1}{2},-2)$

۱۰

الف) $f-g=\left\{(2,2),(1,4),(3,2)\right\} \rightsquigarrow \left\{(1,4),(2,2),(3,2)\right\}$

ب) $\frac{2f}{g}=\left\{(2,4),(1,\frac{5}{0}),(3,-2)\right\}=\left\{(2,4),(3,-2)\right\}$