مرور جامع

تکلیف ۲:

۱) برای ثابت بودن باید ضرایب x^2 و x صفر شود:

$x^2+10x+9x^2-6x+1=mx^2+nx+mn \Rightarrow m=-10 \quad n=4$

$g(x)=\{(4,-10),(4,p+1),(p+2,-11),(-7,p+k)\} \Rightarrow p=-11 \quad k=10$

$\Rightarrow m+n+p+k=-10+4+(-11)+10=-7$

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۲) الف) $x^4-2x^2-8=0 \xrightarrow{x^2=t} t^2-2t-8=0 \Rightarrow t=-2,4 \Rightarrow x^2=4 \Rightarrow x=\pm 2$

$-2 \quad 2$: $- \mid + \mid +$ $\Rightarrow D_f=(-2,+\infty)-\{2\}$

ب) $2[-x]\neq 4 \Rightarrow [-x]\neq 2 \Rightarrow -2>x\geq -3$

$\Rightarrow D_f=R-(-3,-2]$

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۳) الف) ① مخرج $\neq 0 \Rightarrow |x|+x\neq 0 \Rightarrow x>0$

② $x(x^2-1)\geq 0 \Rightarrow$ $-1 \quad 0 \quad 1$: $- \mid + \mid - \mid +$

$D_f=[1,+\infty)$

ب) ① مخرج $\neq 0 \Rightarrow x\neq \pm 1$ ② $|x-2|\geq x^2 \Rightarrow x-2\leq -x^2 \Rightarrow x^2+x-2\leq 0$, $\Delta<0$ ✗

$x<2 \Rightarrow x^2+x-2\leq 0 \Rightarrow$ $-2 \quad 1$: $+ \mid - \mid +$ $\Rightarrow D_f=[-2,1)-\{-1\}$

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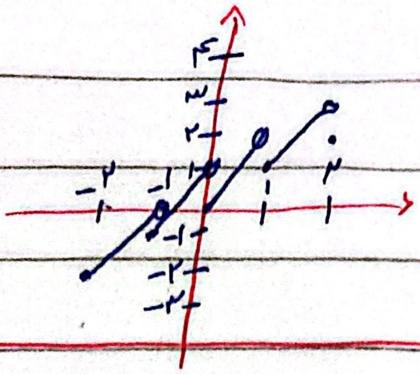
۴) $|x-2|=k+1 \ , \ [x+2]=1-k \Rightarrow$

$\begin{cases} x-2=-1-k \\ x-2=k+1 \\ x-2=k-1 \\ x-2=1-k \end{cases} \Rightarrow k+1=-1-k \Rightarrow k=-1$

۵)



۶) $\frac{x^2+(b-4)x+(2+ab)}{x+a} = x \Rightarrow x^2+(b-4)x+2+ab = x^2+ax$

$\Rightarrow b-4=a \Rightarrow a-b=-4$

۷) $x^3+2x^2-x-2 \;\big|\; x-1$, $\quad x^2+3x+2$, $\quad 0$

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

$\Rightarrow (2$

$\frac{a+2}{b+1}=3 \;,\; \frac{2-a}{b-1}=1 \Rightarrow 2b=4 \Rightarrow b=\frac{1}{2} \Rightarrow 2+\frac{1}{2}=\frac{5}{2}$

۸) $D_g=(-\infty,1] \Rightarrow b-4=0 \Rightarrow b=4$

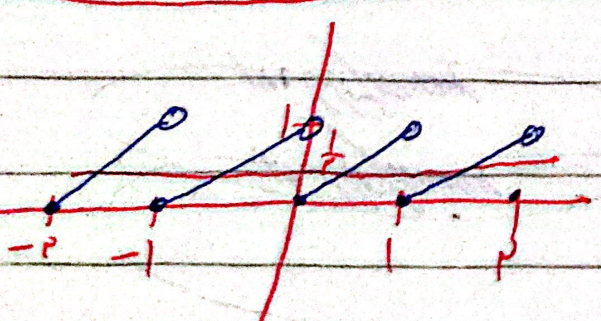
$D_f=[1,+\infty) \Rightarrow a=\frac{4}{3} \xrightarrow{x=1} 2k-2-3k=k \Rightarrow k=-1$

$\Rightarrow 3a-\frac{b}{2}-k = 4-2+1 = 3$

۹) $m-7=0 \Rightarrow m=7 \Rightarrow f-g(2)=2+n-2\sqrt{2}=4\sqrt{2}$

$\Rightarrow n=6\sqrt{2}-2 \Rightarrow m+n=5+6\sqrt{2}$

۱۰)



۴ جواب دارد