نام و نام خانوادگی: ......بهار هیمتیان...... پاسخنامه تشریحی تکلیف شماره ...... کلاس ......دوازدهم B......

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$f(x) = (x+1)^2 + (3x-1)^2 + mx^2 + nx + mn \xrightarrow{\text{تابع ثابت}} f(x) = 10x^2 - 4x + 2 + mx^2 + nx + mn$

$\to m = -10 ,\ n = 4 \longrightarrow f(x) = -45$

$g(x) = \{(4, \cancel{x}), (\cancel{x}, p+1), (\underbrace{p+2}_{-9}, -1), (-9, p+k)\}$ ($\cancel{x} = -10$, $\cancel{x} = 4$)

$p+1 = -10 \to p = -11$

$\underset{-11}{p} + k = -1 \to k = 10$

$\to m+n+p+k = -10 + 4 - 11 + 10 = \boxed{-7}$

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الف) $y = \sqrt{\dfrac{x-2}{x^4-2x^2-8}}$ $\quad \dfrac{x-2}{(x^2-4)(x^2+2)} \geq 0 \to \dfrac{x-2}{(x-2)(x+2)(x^2+2)} \geq 0$

$\begin{array}{ccccc} & -2 & & 2^* & \\ \hline - & & + & & + \end{array} \to D_f = (-2, +\infty) - \{2\}$

ب) $f(x) = \dfrac{2x^2+1}{4-2[-x]}$ $\quad 4-2[-x] \neq 0 \to [-x] \neq 2 \to 2 \leq -x < 3 \to -2 \geq x > -3$

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

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الف) $f(x) = \dfrac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \leadsto \dfrac{x(x^2-1)}{(x+1)(x-1)} \geq 0$ $\quad \begin{array}{ccccccc} & -1 & & 0 & & 1 & \\ \hline - & & + & & - & & + \end{array} \xrightarrow{\cap} D_f = [1, +\infty)$

$\sqrt{|x|+x} \leadsto |x|+x > 0 \to x \in (0, +\infty)$

ب) $f(x) = \dfrac{\sqrt{|x-2|-x^2}}{|x|-1} \to |x-2|-x^2 \geq 0 \to |x-2| \geq x^2 \xrightarrow{\text{توان ۲}} x^2+4-4x \geq x^4$

$|x|-1 \neq 0 \to x \neq \pm 1$ $\quad \to x^4 - x^2 + 4x - 4 \leq 0 \to (\underset{1}{x-1})(\underbrace{x^3+x^2+4}_{-2}) \leq 0$

$\to D_f = [-2, 1) - \{-1\}$ $\quad \to -2 \leq x \leq 1$

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$y = \dfrac{1}{||x-2|-1|-k}$ شامل ۳ عدد صحیح نیست $\quad \boxed{k = \pm 1}$

$||x-2|-1| - k \neq 0 \to |x-2|-1 \neq k \to |x-2| \neq k+1 \to \begin{cases} x \neq k+3 \\ x \neq 1-k \end{cases}$

$|x-2|-1 \neq -k \to |x-2| \neq 1-k \to \begin{cases} x \neq 3-k \\ x \neq k+1 \end{cases}$

چون شامل ۳ عدد شده پس ۲ تا از این عدد ها باهم برابرند

$k+3 = 1-k \to 2k = -2 \to \boxed{k=-1} \to x \neq 2,\ x \neq 2,\ x \neq 4,\ x \neq 0$ ✓

این حالات هم درست است $k+1 = 3-k \to \boxed{k=1}$

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$y = 2x - [x]$

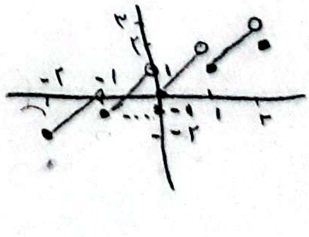
$-2 \leq x < -1 \longrightarrow y = 2x + 2$

$-1 \leq x < 0 \longrightarrow y = 2x + 1$

$0 \leq x < 1 \longrightarrow y = 2x$

$1 \leq x < 2 \longrightarrow y = 2x - 1$

$x = 2 \longrightarrow y = 2$



$f(x) = \frac{x^2-4x+3}{x+a} + b$ همانی $\rightarrow f(x) = x$

$f(x) = \frac{(x-3)(x-1)}{x+a} + b$ $\rightarrow x+a = x-1 \rightarrow a=-1 \rightarrow b=3$ 6

$\rightarrow x+a = x-3 \rightarrow a=-3 \rightarrow b=1$

$\boxed{a-b=-4}$

$f(x) \begin{cases} \frac{x^3+2x^2-x-2}{x^2-1} & x \neq \pm 1 \\ \frac{ax+2}{x+b} & x = \pm 1 \end{cases}$ و $g(x) = x+c$

$\rightarrow \boxed{b+c = 2.5}$ 7

$\frac{x^2(x+2)-(x+2)}{x^2-1} = \frac{(x+2)(\cancel{x^2-1})}{\cancel{x^2-1}} = x+2 \rightarrow x+c = x+2 \rightarrow \boxed{c=2}$

$g(1)=3 \rightarrow f(1)=3 \rightarrow \frac{a+2}{1+b}=3$ و $g(-1)=1 \rightarrow f(-1)=1 \rightarrow \frac{2-a}{b-1}=1 \rightarrow \boxed{b=\frac{1}{2},\ a=\frac{5}{2}}$

$f(x) = \sqrt{4x-3a} + k - 1 \quad g(x) = \sqrt{b-4x} + 3k$

$2f-g = \{(1,k)\} \rightarrow 2\sqrt{4x-3a} + 2k - 2 - \sqrt{b-4x} - 3k = 2f-g = \{(1,k)\}$

$\rightarrow$ اشتراک دامنه دو تابع فقط تک عضوی است $\quad 4x-3a \geq 0 \rightarrow x \geq \frac{3a}{4}$, $\quad b-4x \geq 0 \rightarrow x \leq \frac{b}{4}$ $\rightarrow 3a=b$, $\frac{b}{4}=1 \rightarrow \boxed{b=4}$ 8

$2\sqrt{4x-\cancel{b}} - \sqrt{\cancel{b}-4x} - k - 2 \xrightarrow{x=1} -k-2 = k \rightarrow 2k=-2 \rightarrow \boxed{k=-1}$

$3a = \cancel{b}^4 \rightarrow \boxed{a=\frac{4}{3}} \quad 3a - \frac{b}{4} - k = 4 - 2 + 1 = \boxed{3}$

$f(x) = \sqrt{m-x} + n \quad g(x) = \sqrt{2x+2} \quad D_{f \times g} = [-1, 7]$

$D_g = 2x+2 \geq 0 \rightarrow x \geq -1 \quad D_f = x \leq m \xrightarrow{D_{f\times g} = D_f \cap D_g} D_{f\times g}\ [-1, m]$

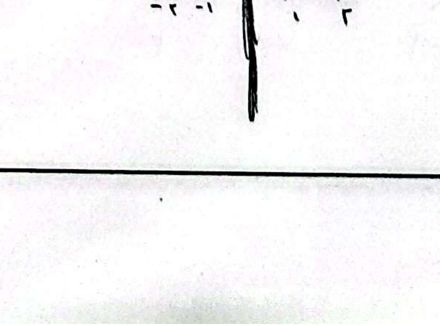
$\boxed{m=7} \rightarrow (f-g)(3) = 6\sqrt{2} \rightarrow 2+n-2\sqrt{2} = 6\sqrt{2}$ 9

$\rightarrow \boxed{n = 8\sqrt{2}-2}$

$m+n = 8\sqrt{2} - 2 + 7 = \boxed{5 + 8\sqrt{2}}$

بازه $[-2, 2]$

$y = (\cancel{-1})^{\cancel{2}}_{1} (x - [x]) = \frac{1}{2}$



$\frac{1}{2}$ 10

4 جواب