نام و نام خانوادگی ...ملیکا کبیری............ پاسخنامه تشریحی تکلیف شماره ...۱... کلاس ...یازدهم تجربی C.........

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$A = \{1,2,3\}$

$B = \{2,3\}$

$A\times B = \{(1,2)(1,3)(2,2)(2,3)(3,2)(3,3)\}$

$B^2 = \{(2,2)(2,3)(3,2)(3,3)\}$

$\Rightarrow A\times B - B^2 = \boxed{\{(1,2)(1,3)\}}$

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الف) $f(x) = \{(3,m^2)(2,1)(-3,m)(-2,m)(3,m+2)(m,4)\}$

$m^2 = m+2 \rightarrow m^2-m-2=0 \rightarrow (m-2)(m+1)=0 \rightarrow \boxed{m=-1}$

$\rightarrow m=2$ غ ق ق

ب) $g(x) = \{(3,m^2)(2,1)(m,4)(3,m+2)(-2,m)(-1,3)\}$

$m^2 = m+2 \rightarrow (m-2)(m+1)=0 \rightarrow m=-1$ غ ق ق

$\rightarrow m=2$ غ ق ق $\Rightarrow$ هیچگاه تابع نمی‌تواند باشد

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$$f(x) = \begin{cases} x^2-1 & ; x\le 1 \\ ax+b & ; 1\le x\le 2 \\ x^3 & ; x\ge 2 \end{cases}$$

$\xrightarrow{x=1} 1^2-1 = a(1)+b \rightarrow a+b=0$

$\xrightarrow{x=2} 2^3 = a(2)+b \rightarrow 2a+b=8$

$\boxed{a=8}, \boxed{b=-8}$

$\boxed{a\times b = 8\times(-8) = -64}$

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$$f(x) = \begin{cases} 2x-3 & ; x\ge k \\ 4-3x & ; x\le k \end{cases}$$

$\xrightarrow{x=k} 2k-3 = 4-3k \rightarrow 5k=7 \rightarrow \boxed{k=\frac{7}{5}}$

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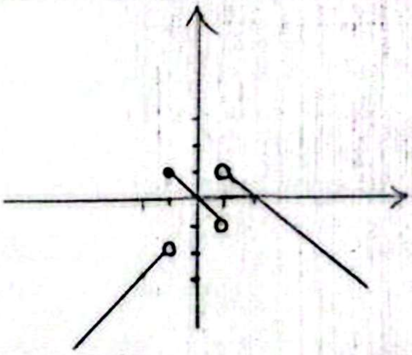
$$f(x) = \begin{cases} -x+2 & ; x>1 \\ -x & ; -1\le x\le 1 \\ x-1 & ; x<-1 \end{cases}$$

شکل $\Rightarrow$



$\boxed{D_f = \mathbb{R}-\{1\}}$

$\boxed{R_f = (-\infty,1]}$

الف) $2y^3+x^2+1=0 \Rightarrow \left.\begin{array}{l} 2y_1^3=-x^2-1 \\ 2y_2^3=-x^2-1 \end{array}\right\} \Rightarrow 2y_1^3=2y_2^3 \Rightarrow y_1^3=y_2^3 \Rightarrow \boxed{y_1=y_2}$

تابع است. ۶

ب) $x^2+4y^2-2x-12y+\underbrace{10}_{+1+9}=0 \Rightarrow (x^2-2x+1)+(4y^2-12y+9)=0$

$\Rightarrow (x-1)^2+(2y-3)^2=0 \rightarrow \boxed{\left(1,\frac{3}{2}\right)}$ تابع است (تک نقطه‌ای)

الف) $x\sin y=y\sin x \xrightarrow{x=0} 0\times\sin y=y\times 0 \rightarrow \boxed{\forall y\in \mathbb{R}}$

تابع نیست

ب) $\sqrt{\frac{x}{y}}+\sqrt{\frac{y}{x}}=2 \xrightarrow{(\ )^2} \frac{x}{y}+\frac{y}{x}+2=4 \rightarrow \frac{x}{y}+\frac{y}{x}=2 \rightarrow \frac{x^2+y^2}{xy}=2$ ۷

$\Rightarrow x^2+y^2=2xy \rightarrow (x-y)^2=0 \rightarrow \boxed{y=x}$ تابع هست

الف) $y=\sqrt{\frac{x-1}{x-3}}+\sqrt{\frac{2-x}{x}}$

$\left.\begin{array}{ll} \frac{x-1}{x-3}\geq 0 & \begin{array}{ccccc} & 1 & & 3 & \\ + & | & - & | & + \end{array} \\ \frac{2-x}{x}\geq 0 & \begin{array}{ccccc} & 0 & & 2 & \\ - & | & + & | & - \end{array} \end{array}\right\} \xRightarrow{\cap} \boxed{D_f=(0,1]}$

ب) $\sqrt{x}+\sqrt{y-1}=\sqrt{3}$ ۸

$x\geq 0$

$\left.\sqrt{y-1}=\sqrt{3}-\sqrt{x} \xrightarrow[\text{است پس باید } \sqrt{3}-\sqrt{x}\geq 0]{\text{چون } \sqrt{y-1} \text{ عبارت نامنفی}} \sqrt{3}-\sqrt{x}\geq 0 \rightarrow \sqrt{x}\leq\sqrt{3} \Rightarrow x\leq 3\right\} \Rightarrow \boxed{D_f=[0,3]}$

الف) $y=\frac{\sqrt{x^2-7x+6}}{\sqrt{x-10x+16}}=\frac{\sqrt{(x-6)(x-1)}}{\sqrt{-9x+16}}$

$\left.\begin{array}{l} \begin{array}{ccccc} & 1 & & 6 & \\ + & | & - & | & + \end{array} \\ -9x+16>0 \rightarrow x<\frac{16}{9} \\ (x-6)(x-1)\geq 0 \end{array}\right\} \xrightarrow{\cap} \boxed{D_f=(-\infty,1]}$

ب) $\sqrt{\frac{x^2-7x+6}{x^2-10x+16}}=\sqrt{\frac{(x-6)(x-1)}{(x-8)(x-2)}}$ ۹

$\frac{(x-6)(x-1)}{(x-8)(x-2)}\geq 0 \Rightarrow \begin{array}{ccccccccc} & 1 & & 2 & & 6 & & 8 & \\ + & | & - & | & + & | & - & | & + \end{array} \Rightarrow \boxed{\begin{array}{c} D_f=(-\infty,1]\cup(2,6] \\ \cup \\ (8,+\infty) \end{array}}$

الف) $y=\frac{\sqrt{2x^2-5x+3}}{\sqrt{3x^2-7x+4}}=\frac{\sqrt{(2x-3)(x-1)}}{\sqrt{(x-1)(3x-4)}}$

$(2x-3)(x-1)\geq 0 \ , \ (x-1)(3x-4)\geq 0 \Rightarrow \left.\begin{array}{l} \begin{array}{ccccc} & 1 & & \frac{3}{2} & \\ + & | & - & | & + \end{array} \\ \begin{array}{ccccc} & 1 & & \frac{4}{3} & \\ + & | & - & | & + \end{array} \end{array}\right\} \xRightarrow{\cap} \boxed{D_f=(-\infty,1)\cup\left[\frac{3}{2},+\infty\right)}$

ب) $y=\sqrt{\frac{2x^2-5x+3}{3x^2-7x+4}}=\sqrt{\frac{(2x-3)(x-1)}{(x-1)(3x-4)}}$

$\frac{(2x-3)(x-1)}{(x-1)(3x-4)}\geq 0 \Rightarrow \begin{array}{ccccccc} & 1^{\star} & & \frac{4}{3} & & \frac{3}{2} & \\ + & | & + & | & - & | & + \end{array} \Rightarrow \boxed{\begin{array}{c} D_f=\left(-\infty,\frac{4}{3}\right)\cup\left[\frac{3}{2},+\infty\right) \\ -\{1\} \end{array}}$