نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۳ ..... کلاس .....

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الف) $y^2 - x = 2x^2$

$$\begin{cases} y_1^2 = 2x^2 + x \\ y_2^2 = 2x^2 - x \end{cases} \Rightarrow y_1^2 = y_2^2 \longrightarrow y_1 = y_2 \quad \checkmark$$ تابع است

ب) $|y| + x^2 = x + 2 \xrightarrow{x=0} y = \pm 2$ ✗ تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0$ $\quad \sqrt{x-4} = 0 \to x = 4$ $\quad |y-2| = 0 \to y = 2$ ✓ تابع است

د) $x = \cos y \xrightarrow{x=0} y = \frac{\pi}{2}$ و $\frac{3\pi}{2}$ ... ✗ تابع نیست

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الف) $\frac{x+4}{x^2-4x}$ $\quad x(x-4) = 0 \Rightarrow \begin{cases} x=0 \\ x=4 \end{cases} \to D = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{x+4}{x^2-7x+16} \Rightarrow D = \mathbb{R}$

ج) $y = \frac{x+4}{x^2+x+4} \Rightarrow D = \mathbb{R}$

د) $y = \frac{x+4}{x^4-4x^2}$ $\quad x^2(x^2-4) = 0 \Rightarrow \begin{cases} x=0 \\ x=\pm 2 \end{cases} \to D = \mathbb{R} - \{0, \pm 2\}$

۳

الف) $y = \sqrt{y-x} + \sqrt{x-2}$

$y - x \geq 0 \Rightarrow y \geq x$

$x - 2 \geq 0 \Rightarrow x \geq 2$ $\xrightarrow{\cap}$ $D = [2, 6]$

ب) $y = \frac{2x+1}{x^2+1} \Rightarrow D = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-4}$

$x - 2 \geq 0 \to x \geq 2$

$x - 4 = 0 \to x = 4$ $\xrightarrow{\cap}$ $D = x \geq 2$ $\quad$ یا $[2, +\infty)$

د) $y = \frac{2x+4}{|x|+x^2}$ $\quad |x| + x^2 = 0 \to x = 0 \Rightarrow D = \mathbb{R} - \{0\}$

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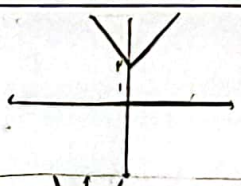
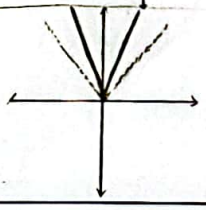
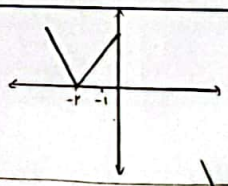
الف) $y = |x| + 2$



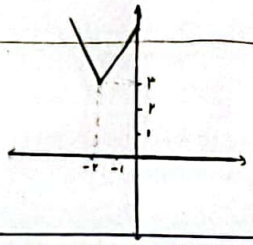
ب) $y = 2|x|$



ج) $y = |x+2|$ $\quad$ نمودار تابع $|x|$ رو y



د) $y = |x+2| + 2$



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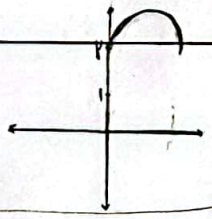
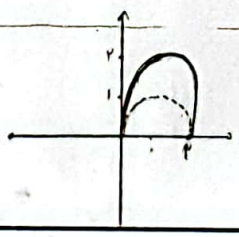
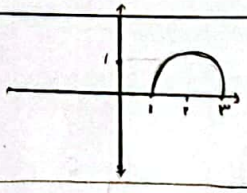
الف) $f(x) + 2$



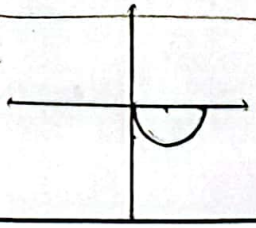
ب) $2f(x)$



ج) $f(x-1)$ $\quad$ نمودار $f(x)$



د) $-f(x)$



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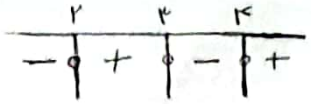
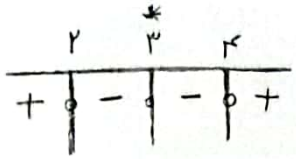
الف) $y=(x-2)(x-3)(x-4)$



$D=(-\infty,2]\cup[3,4]\cup[4,+\infty)$

ب) $y=(x-2)(x-3)^2(x-4)$



$D=\{3\}\cup(-\infty,2]\cup[4,+\infty)$

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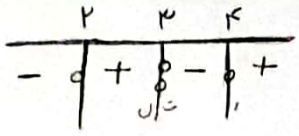
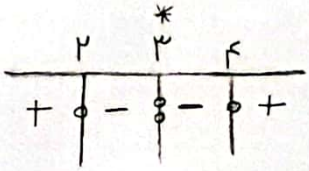
الف) $\dfrac{(x-2)(x-4)}{x-3}$



$D=(-\infty,2]\cup(3,4]\cup[4,+\infty)$

ب) $\dfrac{(x-2)(x-4)}{(x-3)^2}$



$D=(-\infty,2]\cup[4,+\infty)$

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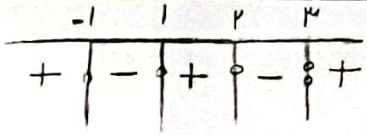
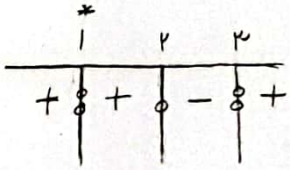
الف) $\dfrac{x^3-3x+2}{x-3}\longrightarrow(x-2)(x^2-1)$



$D=(-\infty,-1]\cup[1,2]\cup[3,+\infty)$

ب) $\dfrac{x^2-3x+2}{x^2-4x+3}\longrightarrow\dfrac{(x-2)(x-1)}{(x-3)(x-1)}$



$D=(-\infty,1)\cup(1,2]\cup(3,+\infty)$

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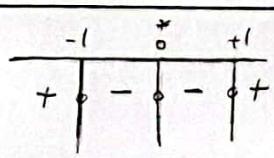
الف) $\dfrac{x^4-x^2}{x^2+x+2}\longrightarrow\dfrac{x^2(x^2-1)}{x^2+x+2}\longrightarrow\begin{cases}x=0\\x=\pm1\end{cases}$

دلتا منفی است $\rightarrow$ ریشه ندارد



$D=(-\infty,-1]\cup\{0\}\cup[1,+\infty)$

ب) $y=\dfrac{x^2+3x+4}{x^2+2x+3}\longrightarrow$ صورت و مخرج ریشه ندارد $\quad D=\mathbb{R}$

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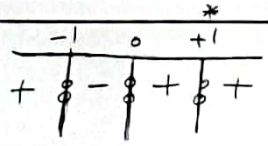
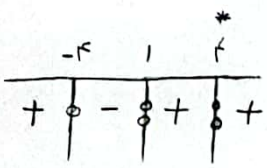
الف) $y=\sqrt{\dfrac{x^3-1}{x^3-x}}\qquad\dfrac{x^3-1}{x^3-x}\geq0$



$D=\mathbb{R}-[-1,0]$

ب) $y=\sqrt{\dfrac{x^2-16}{x^2-5x+4}}\longrightarrow\dfrac{(x-4)(x+4)}{(x-4)(x-1)}\geq0$



$D=\mathbb{R}-(-4,1]$