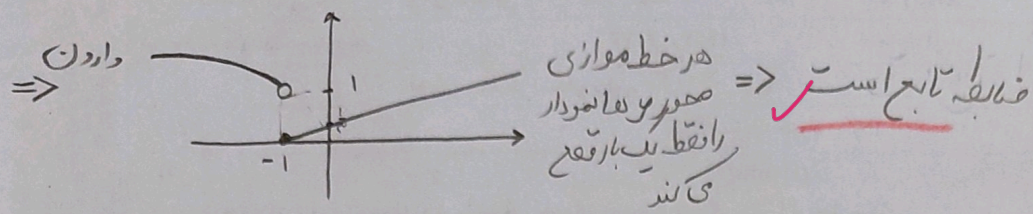
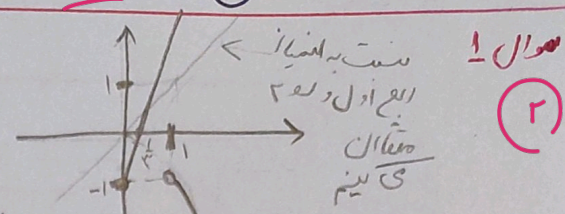
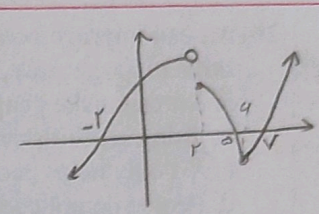
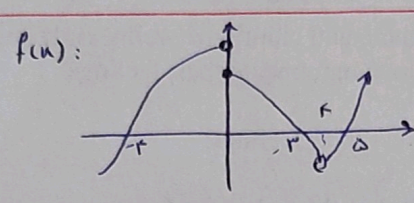


$$x = \begin{cases} 3y-1 & y \geq 0 \\ -y^2 & y < 0 \end{cases}$$

واردن $\rightarrow y = \begin{cases} 3x-1 & x \geq 0 \\ -x^2 & x < 0 \end{cases}$



$$g(x) = \sqrt{\frac{x f(x-2)}{f(x)}}$$



x	-4	-2	0	3	5	7
f(x)	-	+	+	+	-	+
f(x-2)	-	-	+	+	+	-
	-	+	-	+	+	-

$\Rightarrow D: (-4, 2) \cup [0, 3) \cup (7, +\infty)$ ✓

فقط دو است باشد که $x=4$ در دامنه است و $x=4$ در دامنه است $f(x-2)$ نیست که در بازه است آفده نیست

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

الف) f(x) : $x^3 - 4x \neq 0 \rightarrow x(x^2 - 4) \neq 0 \rightarrow x(x-2)(x+2) \neq 0 \rightarrow x \neq 0, 2, -2$

$\Rightarrow D: \mathbb{R} - \{0, 2, -2\}$ ✓

ب) $\sqrt{f(x)}$: $\Delta = 9 - (4 \times 2 \times 2) = -7 \rightarrow \Delta < 0 \rightarrow$ صورت لیسر
جواره نیست $\Rightarrow D: (-2, 0) \cup (2, +\infty)$ ✓

$\rightarrow x(x-2)(x+2) \rightarrow$ جدول علامت

$$g = \sqrt{\frac{x-2}{x^4 - 2x^2 - 8}}$$

$\frac{x-2}{x^4 - 2x^2 - 8} \geq 0 \rightarrow \frac{x-2}{(x^2+2)(x-2)(x+2)} \geq 0 \rightarrow \frac{1}{(x+2)} \geq 0$

$\Rightarrow D: (-2, +\infty) - \{2\}$ ✓

$$g = \frac{2x^2 + 1}{x - 2[-x]}$$

$x - 2[-x] \neq 0 \rightarrow x \neq 2[-x] \rightarrow [-x] \neq 2 \rightarrow 2 \leq -x < 3 \rightarrow -2 \geq x > -3$

$\Rightarrow D: \mathbb{R} - (-3, -2)$ ✓

الف) $f(x) = \sqrt{x(x^2-1)} \rightarrow x(x^2-1) \geq 0 \rightarrow \frac{x}{-1+0-1+} \rightarrow [-1, 0] \cup [1, +\infty)$

$\sqrt{|x|+x} \rightarrow |x|+x \geq 0 \rightarrow \frac{x}{+ - -} \rightarrow x \geq 0$

سوال ۵ (۲)

$\Rightarrow D: [1, +\infty)$ ✓

ب) $f(x) = \sqrt{|x-2|-x^2} \rightarrow |x-2|-x^2 \geq 0 \rightarrow |x-2| \geq x^2$

$|x|-1 \rightarrow |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1$

$x^2 + x - 2 \leq 0 \rightarrow x^2 + x + 2 \leq 0 \rightarrow x$ جدول علامت

$(x-1)(x+2) \leq 0 \rightarrow \frac{x}{+ - -} \rightarrow (-2, 1)$

$\Rightarrow D: [-2, 1) - \{-1\}$ ✓

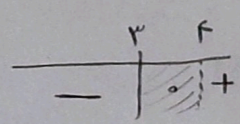
الف) $y = \sqrt{(x-2)[x-2]} \rightarrow (x-2)[x-2] \geq 0$

$\frac{x}{+ - +} \rightarrow D: \mathbb{R}$ ✓

سوال ۶ (۲)

ب) $y = \sqrt{|x-1|[x-2]}$

$\rightarrow$ جدول علامت $\rightarrow$ جواره نیست



$\Rightarrow D: [2, +\infty) \cup \{1\}$ ✓

سوال ۷

$$d = \frac{1}{|n-2|-1-k} \quad k=? \quad (k \geq 0)$$

$$|n-2|-1-k \neq 0 \rightarrow |n-2|-1 \neq k \rightarrow |n-2| \neq k+1$$

$$|n-2|-1-k \neq 0 \rightarrow |n-2|-1 \neq -k \rightarrow |n-2| \neq 1-k$$

① $n \neq k+3$ ③ $n \neq 3-k$ ⑤ $n \neq k+1$
 ② $n \neq 1-k$ ④ $n \neq k+1$

برای اینکه ۳ عدد در دامنه
 نگه داشته شود از این
 ضوابط برآید:

۱) $k+3=3-k \rightarrow k=0 \rightarrow X$
 ۲) $k+3=1-k \rightarrow k=-1 \rightarrow X$
 ۳) $k+1=3-k \rightarrow k=1 \rightarrow \checkmark$

$\Rightarrow k=1$

(۲)

سوال ۸

$$f(n) = \frac{x^2+3x+2}{x^2+3x+2} \rightarrow \frac{x^2+3x+2}{x^2+3x+2} \neq 0 \rightarrow (n+1)(n+2) \rightarrow n \neq -1, -2$$

$$\frac{n+1}{n-1} \rightarrow \frac{n+1}{n-1} \neq 0 \rightarrow n \neq 1$$

$$x^2-2nx+3n=0 \rightarrow n=3 \rightarrow x^2-6x+9=0 \rightarrow (x-3)^2=0 \rightarrow x=3$$

$\Rightarrow k=3$

(۲)

سوال ۹

$$y = \log_{x+1} \log_x \frac{1}{y}$$

$$\log \frac{1}{y} \rightarrow \frac{1}{y} > 0 \rightarrow y < 0$$

$$\log \log_{x+1} \frac{1}{y} \rightarrow \log \frac{1}{y} > 0 \rightarrow \frac{1}{y} > 1 \rightarrow y < 1$$

$$\log \log_{x+1} \frac{1}{y} \rightarrow \log \frac{1}{y} > 0 \rightarrow \frac{1}{y} > 1 \rightarrow y < 1$$

$$\log \log_{x+1} \frac{1}{y} \rightarrow \log \frac{1}{y} > 0 \rightarrow \frac{1}{y} > 1 \rightarrow y < 1$$

$$\log \log_{x+1} \frac{1}{y} \rightarrow \log \frac{1}{y} > 0 \rightarrow \frac{1}{y} > 1 \rightarrow y < 1$$

$\Rightarrow D_f = (0, 1)$

سوال ۱۰

$$D_f(x) = [-2, 3]$$

$$D_f(3x^2-1) = ?$$

$$-2 \leq 3x^2-1 \leq 3 \rightarrow -1 \leq 3x^2 \leq 4 \rightarrow x^2 \leq \frac{4}{3} \rightarrow -\frac{2\sqrt{3}}{3} \leq x \leq \frac{2\sqrt{3}}{3}$$

$$\Rightarrow D_{f(3x^2-1)} = \left[-\frac{2\sqrt{3}}{3}, \frac{2\sqrt{3}}{3}\right]$$

(۲)