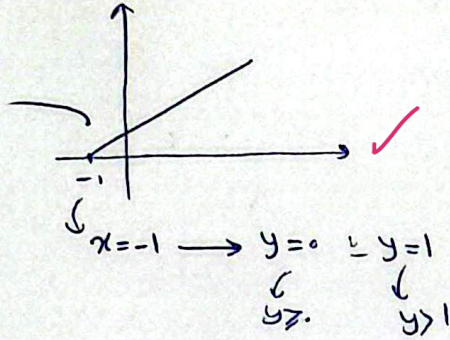


1) $x = \begin{cases} 2y-1 \\ -y^2 \end{cases} \quad \begin{matrix} y \geq 0 \\ y > 1 \end{matrix} \rightarrow \begin{cases} 2y-1 \\ -y^2 \end{cases} \quad \begin{matrix} y \geq 0 \rightarrow n = [-1, +\infty) \\ y > 1 \rightarrow n = (-\infty, -1] \end{matrix}$ پایین عبارت



$$\begin{cases} 2y-1 \rightarrow \frac{n+1}{2} = y \\ \pm \sqrt{-n} = y \end{cases} \quad y > 1$$

تکلیف شما بسیار شبیه حلایا مغذیان است
از تعقات بعدی به هر دو تقریباً تعلق فرمید

2) $g(x) = \sqrt{\frac{x f(x-2)}{f(x)}} = \sqrt{\frac{x f(n-2)}{f(n)}} \geq 0$ 1, 5 $D_{g(n)} = ?$

	-4	-2	0	2	4	6	8
$f(x-2)$	-	+	+	+	+	+	+
x	-	-	-	+	+	+	+
$f(x)$	+	+	+	+	+	+	+
p	+	-	+	+	+	+	+

$f(n-2) \rightarrow \Delta, \nabla$

$$D_{f(n)} = \mathbb{R} - \{4\}$$

$$D_{f(n-2)} = \mathbb{R} - \{4\}$$

$$D_x = \mathbb{R} - \{-4, -2, 0, 2, 4\}$$

3) $f(n) = \frac{n^3 - 3n^2 + 2}{n^3 - 5n}$ 2

الف) $D_{f(n)} = ? \rightarrow D_{f(n)} = n^3 - 5n \neq 0 \rightarrow n^3 - 5n = 0$
 $x(x-2)(x+2) = 0 \rightarrow \begin{cases} x=0 \\ x=2 \\ x=-2 \end{cases}$
 $D_{f(n)} = \mathbb{R} - \{0, 2, -2\}$ ✓

ب) $\sqrt{f(n)} = \sqrt{\frac{n^3 - 3n^2 + 2}{n^3 - 5n}} \geq 0 \rightarrow n^3 - 3n^2 + 2 \geq 0$

$b^2 - 4ac = 9 - 14 = -5$, $x_{ext} = -\frac{b}{2a} = \frac{3}{2} \rightarrow y = (2 \times \frac{9}{4}) - \frac{9}{2} + 2 = \frac{1}{2} \rightarrow$

$0 \leq n^3 - 5n \rightarrow 0 < n(n^2 - 5) \rightarrow 0 < n(n-2)(n+2)$

	-2	0	2
	-	+	-

$D_{f(n)} = (-2, 0) \cup (2, +\infty)$ ✓

$$f) y = \sqrt{\frac{x-2}{x^2-2x^2-1}} \rightsquigarrow \frac{x-2}{x^2-2x^2-1} \geq 0$$

(1, 25)

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

always p

$$\frac{-2}{-1} + \frac{2}{1} + \frac{2}{x^2+2}$$

وقت!

$$(-2, +\infty) - \{2\}$$

مخرج نباید صفر شود!

$$\rightarrow \frac{x^2+1}{x-2[-x]} \rightarrow x-2[-x] \neq 0 \rightsquigarrow x-2[-x] \rightarrow x=2[-x]$$

$$\begin{aligned} & \downarrow \\ & 2 \leq -x \leq 3 \\ & -3 \leq x \leq -2 \end{aligned}$$

$$D_{f(x)} = \cancel{(-3, -2)} \cup \mathbb{R} - (-3, -2) \quad \text{وقت!}$$

$$a) f(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \Rightarrow \sqrt{x(x^2-1)} \rightsquigarrow 0 \leq x(x^2-1)$$

(1, 5)

$$\begin{aligned} & \rightarrow 0 \leq x(x-1)(x+1) \\ & D = [-1, 0] \cup [1, +\infty) \end{aligned}$$

D

$$\begin{aligned} \sqrt{|x|+x} & \begin{cases} \rightarrow 0 \leq x \rightarrow x+x=2x \quad \text{و و} \\ \rightarrow x \leq 0 \rightarrow -x+x=0 \quad \text{و و و} \end{cases} \\ & \left. \begin{matrix} \rightarrow 0 \leq x \rightarrow x+x=2x \quad \text{و و} \\ \rightarrow x \leq 0 \rightarrow -x+x=0 \quad \text{و و و} \end{matrix} \right\} D = (0, +\infty) \end{aligned}$$

$$D_I \cap D_{II} \rightarrow [1, +\infty) \checkmark$$

$$b) f(x) = \frac{\sqrt{|x-1|-x^2}}{|x|-1} \rightsquigarrow \sqrt{|x-1|-x^2} \rightarrow 0 \leq |x-1|-x^2$$

$$\begin{aligned} & \begin{matrix} x < 1 & 1 < x \\ -x^2-x+1 & x-x-x^2 \end{matrix} \rightsquigarrow \boxed{-x^2+x-1} \quad \text{و و} \\ & \begin{matrix} \rightarrow 1 \\ \rightarrow -1 \end{matrix} \\ & \frac{-b}{2a} = \frac{1}{2} \rightarrow \frac{-\Delta}{4a} = -\frac{5}{4} < 0 \end{aligned}$$

$$\frac{-1}{-1} + \frac{1}{1} = 0$$

$$D = [-1, 1] \cap [-\infty, 1] \Rightarrow [-1, 1]$$

$$|x|-1 \neq 0 \rightarrow |x| \neq 1, \quad x \neq 1, -1$$

$$D_{f(x)} = \cancel{[-1, 1]} - \{1, -1\}$$

(6) $y = \sqrt{(x-1)[x-2]}$

(1)

$(x-1)[x-2] \geq 0 \rightarrow \begin{array}{c} 1 \quad 2 \\ - \quad + \\ \hline 0 \quad 0 \end{array} \rightarrow D_f(x) = \cancel{[1, 2]} \cup \{1, 2\}$

یاد قدرت و برکتش عموماً هم علامتد پس دامنه تابع IR مرید شد!

$\Rightarrow \sqrt{(x-1)[x-2]} \rightarrow \begin{array}{c} 1 \quad 2 \quad 3 \\ - \quad - \quad 0 \quad + \end{array} \rightarrow D_f(x) = [2, +\infty) \cup \{1\}$ ✓

(7) $\frac{1}{|x-1|-1} = k \rightarrow |x-1|-1 = \frac{1}{k} \rightarrow |x-1| = 1 + \frac{1}{k}$ k=1 ✓

(2)

$|x-1|-1 = k \rightarrow |x-1|-1 = \pm k \rightarrow +k$

$k > 0 \rightarrow |x-1| = \pm k + 1$

$k+1 > 0 \rightarrow |x-1| = 1 \rightarrow x-1 = \pm 1 \rightarrow x = 2 \text{ or } x = 0$

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

(1,5)

$x^2 + 3x + 2 \neq 0 \rightarrow (x+1)(x+2) \neq 0 \rightarrow x \neq -1, -2$ ✓

$n \neq -1 \rightarrow n^2 - 2nn + 12 \rightarrow n^2 - 11n + 12 = 0 \rightarrow (n-3)(n-4) = 0 \rightarrow n = 3 \text{ or } n = 4$

(9) $\log_{x+1} \log_{\frac{1}{x}} \rightarrow \log_{x+1} \rightarrow x+1 \neq 1 \rightarrow x \neq 0$
 $x+1 > 0 \rightarrow x > -1$ ✓
 $\log_x \rightarrow 0 < x \rightarrow x \neq 1$

(1,5)

$D_f(x) = (\cancel{0, -1, 1}) \cup \{1\}$

(1) $\sqrt{3}x^2 - 1 = 0$

(2)

$D_f(x) = [-\Delta, \Delta]$

$-\Delta \leq \sqrt{3}x^2 - 1 \leq \Delta \rightarrow -\frac{\Delta}{\sqrt{3}} \leq x^2 \leq \frac{\Delta}{\sqrt{3}} \rightarrow 0 \leq x^2 \leq \frac{\Delta}{\sqrt{3}}$

$\frac{-\sqrt{\Delta}}{\sqrt{3}} \leq x \leq \frac{\sqrt{\Delta}}{\sqrt{3}} \rightarrow D(x) = \left[-\frac{\sqrt{\Delta}}{\sqrt{3}}, \frac{\sqrt{\Delta}}{\sqrt{3}}\right] \checkmark$

$\frac{x \cdot f(x-2)}{f(x)} \geq 0 \rightarrow$

-4	-2	0	3	5	7
-	+	-	+	-	+
ت	ف	ت	ف	ت	ف

ریشه مشترک $f(x-2)$ و $f(x)$

-2

$D_g = (-4, -2] \cup [0, 3) \cup [7, +\infty)$

فقط عوض باشد که $x=4$ در دایره $f(x)$ و $x=4$ در دایره $f(x-2)$ نیست که در بازه است آفده نیست.

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

5 ب 1

2) $|x-2| - x^2 \geq 0 \rightarrow$

$-x^2 - x + 2 \geq 0$ $\frac{-2}{-1} \quad \frac{1}{-}$ $- \quad + \quad -$	$-x^2 + x - 2 \geq 0$ $\Delta < 0 \quad \times$
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$D_f = [-2, 1) - \{-1\}$

8- بانه ریشه تمام خارج ها را در مخرج!

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

$x^2 - 2x + 3 = 0 \rightarrow x^2 - 4x + 9 = 0 \rightarrow x=3$ ریشه!

1) $x+1 > 0 \rightarrow x > -1$, $x+1 \neq 1 \rightarrow x \neq 0$

9

2) $x > 0$, $x \neq 1$

3) $\lg \frac{1}{x} > 0 \rightarrow 0 < x < 1$

$\Rightarrow D_f = (0, 1)$