

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

(1)

الاول: عند حاليه من المسئله

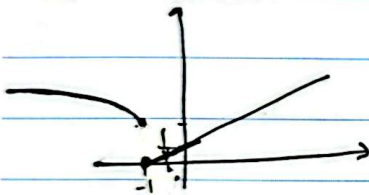
$$\begin{cases} 3y-1 & y \geq 0 \rightarrow x = [-1, +\infty) \\ -y^2 & y > 1 \rightarrow x = (-\infty, -1] \end{cases}$$

من ضابطه تابع است

الاول

$$\begin{cases} x = 3y-1 & y \geq 0 \rightarrow \frac{x+1}{3} = y & y \geq 0 \\ x = -y^2 & y > 1 \rightarrow \pm \sqrt{-x} = y & y > 1 \end{cases}$$

لـ $y < 0$ و $y = \sqrt{-x}$ قابل است



$$x = -1 \rightarrow y = 0 \quad y \geq 0$$

$$\rightarrow y = 1 \quad y > 1$$

لـ $y < 0$ و $y = \sqrt{-x}$ قابل قبول است

من ضابطه تابع است.

$$g(x) = \sqrt{\frac{x f(x-2)}{f(x)}} \rightarrow 0 \leq \frac{x f(x-2)}{f(x)}$$

(2)

طبق جدول = ریشه ها از $x-2$ و x

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

حل المسألة

$$D_{f(n)} = \mathbb{R} - \{1\}$$

$$D_{f(n-1)} = \mathbb{R} - \{1\}$$

$$D_n = \mathbb{R} - \{-1, 1, 3, 5, 7\}$$

$$f(n) = \frac{n^2 - 4n + 1}{n^2 - 4n}$$

(2)

$$D_{f(x)} = ? \quad D_{f(n)} = n^2 - 4n \neq 0 \rightarrow n^2 - 4n = 0$$

(3)

$$n(n-4)(n+4) = 0$$

$$D_{f(n)} = \mathbb{R} - \{0, 4, -4\}$$

$$x = 0 \quad x = 4 \quad x = -4$$

$$\sqrt{f(n)} = \sqrt{\frac{n^2 - 4n + 1}{n^2 - 4n}} \rightarrow 0 \leq \frac{n^2 - 4n + 1}{n^2 - 4n}$$

$$n^2 - 4n + 1 \rightarrow 0 < 0 \rightarrow b^2 - 4ac = 16 - 4 = 12 > 0$$

$$x_{ext} = \frac{-b}{2a} = \frac{4}{2} = 2 \rightarrow y = 2 \times \frac{1}{4} - \frac{1}{4} + 1 = \frac{1}{2} \rightarrow 0 < y$$

لذلك فإن الدالة موجبة على المجال المطلوب

$$0 \leq n^2 - 4n \rightarrow 0 < n(n-4) \rightarrow 0 < n(n-4)(n+4)$$

$$\frac{-4}{-4} < \frac{0}{-4} < \frac{4}{-4} \rightarrow n = (-4, 0) \cup (4, +\infty)$$

$$D_{f(n)} = (-4, 0) \cup (4, +\infty)$$

(4)

حسابیه

$$D_f = (-1, +\infty) \quad (f)$$

$$y = \sqrt{\frac{n-r}{n^2 - 2nr - 1}} \rightarrow \frac{n-r}{n^2 - 2nr - 1} \geq 0 \quad (f)$$

$$\frac{n-r}{(n^2-4)(n^2+2)}$$

$$\frac{n-r}{(n-r)(n+r)(n^2+2)}$$

⊕ or ⊖

$$\frac{-r}{-\infty + \infty +}$$

$$y = \frac{2n^2+1}{4-r[-n]}$$

$$4-r[-n] = 0 \rightarrow 4 = r[-n] \rightarrow r = [-n]$$

$$r = [-n] \rightarrow r \leq -n < r \rightarrow -r < n \leq r$$

$$D_{f(n)} = (-r, -r]$$

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

حل المسألة

(5)

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

$$\textcircled{1} \sqrt{x(x^2-1)} \rightarrow 0 \leq x(x^2-1) \rightarrow 0 \leq x(x-1)(x+1)$$

$$D_1 = [-1, 0] \cup [1, +\infty)$$

$$\begin{array}{ccc} -1 & 0 & +1 \\ - & + & - & + \end{array}$$

$$\textcircled{2} \sqrt{|x|+x} \begin{cases} x > 0 \rightarrow x+x=2x \rightarrow \text{قبول} \\ x \leq 0 \rightarrow -x+x=0 \rightarrow \text{عندما لا يقبل} \end{cases} \left. \begin{array}{l} \\ \end{array} \right\} D_2 = (0, +\infty)$$

$$0 < |x|+x$$

$$D_{(1)} \cap D_{(2)} = [1, +\infty)$$

حل صوری

$$f(n) = \frac{\sqrt{|n-2| - n^2}}{|n|-1}$$

$$\sqrt{|n-2| - n^2} \rightarrow 0 \leq |n-2| - n^2$$

$$y = -n^2 - n + 2 \quad D_n = [-2, 1] \quad \cap \quad D = (-\infty, 2] = [-2, 2]$$

$-2 = \frac{c}{a}$
 جمع صورتها 0
 صورت مساوی

$x_{ext} = \frac{-b}{2a} = \frac{1}{-2} = -\frac{1}{2}$

$$y_{ext} = -\frac{1}{4} + \frac{1}{2} - 2 = -\frac{7}{4}$$

نواره $\ominus$ میں قابل قبول نہیں

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

$$D_{f(n)} = [-2, 2] - \{-1, 1\}$$

$$y = \sqrt{(n-2)[n-2]}$$

(4)

$$m \neq 1 \rightarrow m \neq \pm 1$$

$$D_{f(m)} = [-r, r] - \{-1, 1\}$$

حل المسألة

(4)

الف) $y = \sqrt{(n-r)[n-r]}$

$$0 \leq (n-r)[n-r] \rightarrow \begin{array}{c} r \quad r \\ - \quad \phi \quad 0 \quad \vdots \quad + \end{array} \quad D_{f(m)} = [r, +\infty)$$

$$\Rightarrow y = \sqrt{|n-1|[n-r]} \rightarrow \begin{array}{c} \phi \quad r \quad r \\ - \quad \phi \quad - \quad \phi \quad 0 \quad \vdots \quad + \end{array} \quad D_{f(m)} = [r, +\infty) \cup \{1\}$$

$$y = \frac{1}{|n-r|-1} - k \rightarrow ||n-r|-1| - k = 0 \quad \boxed{k=1} \quad (v)$$

$$|n-r|-1 = k \rightarrow |n-r|-1 = \pm k$$

$0 < k$

$$|n-r| = \pm k + 1$$

أو $\oplus$ المسألة
→ جواب المتباينة

$$0 < k \rightarrow k+1 > 0$$

REEF GROUP

$$|n-r|-1 = 1 \rightarrow \begin{cases} |n-r|-1 = +1 \rightarrow |n-r| = 2 \rightarrow \begin{cases} n=3 \\ n=0 \end{cases} \\ |n-r|-1 = -1 \rightarrow |n-r| = 0 \rightarrow n=1 \end{cases}$$

$k=1$ أو

جواب سوال

$$f(n) = \frac{\frac{n^2 + 3n + 2}{n^2 + 2n + 1}}{\frac{n+1}{n-1}} \quad (1)$$

معرّن باشد $\rightarrow n-1 \neq 0 \rightarrow n \neq 1$

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

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

$$n \in \mathbb{K}$$

$$\rightarrow n^2 - 4n + 4 \Rightarrow n^2 - 4n + 4 = 0$$

$$(n-2)(n-2) = 0 \rightarrow \begin{cases} n = 2 \\ n = 2 \end{cases}$$

پس $n = 2$

$$n = K$$

$$\Rightarrow n^r - r n + 1^r \Rightarrow n^r - 1 n + 1^r = 0$$

$$(n-1)(n-1) = 0 \Rightarrow \begin{cases} n=1 \\ n=1 \end{cases}$$

دو جواب

$$y = \log_{n+1} \log \frac{1}{n}$$

حل و جواب (9)

$$\log_{n+1} \rightarrow n+1 \neq 1 \rightarrow n \neq 0$$

$$n+1 > 0 \rightarrow n > -1$$

$$\log_n \rightarrow 0 < n \quad n \neq 1$$

مجموعه جواب

$$D_{f(n)} = (0, +\infty) - \{1\}$$

$$D_{f(n)} = (r n^r - 1) = ?$$

$$D_{f(n)} = [-\omega, \omega]$$

(10)

$$-\omega \leq r n^r - 1 \leq \omega \rightarrow -\frac{\omega}{r} \leq n^r \leq \frac{\omega}{r} \rightarrow 0 \leq n^r \leq \frac{\omega}{r}$$

$$-\frac{\omega}{r} \leq n \leq \frac{\omega}{r} \rightarrow D_{(n)} = \left[-\frac{\sqrt[r]{\omega}}{r}, \frac{\sqrt[r]{\omega}}{r} \right]$$