

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

$$\frac{n+1}{2} \geq \frac{-1}{-1+}$$

$$y = \sqrt{-n} > 1 \quad (n < -1)$$

$$n > -1 \rightarrow \text{نیم داریم}$$

$$n < -1 \rightarrow \text{نیم داریم}$$

$$n = -1 \rightarrow y = 0$$

$$f(n) = 0 \rightarrow n = -1, 3, 5$$

$$n = 0$$

$$f(n-2) = \begin{cases} n-2 = -1 \rightarrow n = -1 \\ n-2 = 3 \rightarrow n = 5 \\ n-2 = 5 \rightarrow n = 7 \end{cases}$$

$$\begin{array}{cccccc} -1 & -2 & 0 & 3 & 5 & 7 \\ - & + & - & + & - & + \end{array}$$

$$(-1, -2] \cup [0, 3) \cup [7, +\infty) - \{2, 4\}$$

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

$$n^2 - 2n \neq 0$$

$$n(n-2)(n+2) \neq 0 \rightarrow \{2, -2, 2\}$$

$$\sqrt{\frac{n^2 - 2n + 2}{n^2 - 2n}} \geq 0$$

$$A: n^2 - 2n + 2$$

$$B: \Delta = 4 - 4 \times 2 \times 2 = 4 - 16 \rightarrow \Delta < 0$$

چون a همیشه مثبت است پس همیشه مثبت

$$\begin{array}{cccc} -2 & 0 & 2 & \\ - & + & - & + \end{array} \quad D_f = (-2, 0) \cup (2, +\infty)$$

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

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

$$\begin{array}{cccc} -2 & 2 & & \\ - & + & & + \end{array}$$

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

$$g) y = \frac{n^2 + 1}{2 - 2[-n]}$$

$$2 \neq 2[-n] \quad 2 \neq [-n]$$

$$2 \neq -n \quad 2 \neq n$$

$$D_f = \mathbb{R} - \{-2, -2\}$$

$$f(n) = \frac{\sqrt{n(n^2 - 1)}}{\sqrt{n^2 + 2n}} \geq 0 \quad n(n-1)(n+1) \geq 0$$

$$\sqrt{n^2 + 2n} > 0 \rightarrow n > -2$$

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

$$[1, +\infty)$$

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

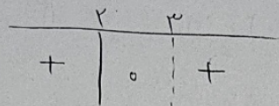
$$\Delta = 1 - 4 \times (-1) \times (-1) = 1 - 4 = -3 < 0$$

$$n^2 - 1 \neq 0 \rightarrow n \neq \pm 1$$

$$D_f = [-2, 1] - \{1\}$$

$$= [-2, 1) - \{1\}$$

الف) $y = \sqrt{(n-r)[n-r]} \geq 0$

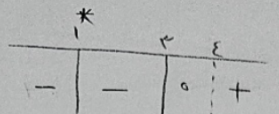


$D_f = \mathbb{R}$ ✓

-4

(r)

ب) $y = \sqrt{|n-1| [n-r]} \geq 0$



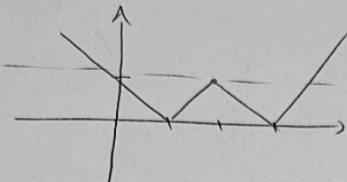
$D_f = \{1\} \cup [r, +\infty)$ ✓

-5

(r)

$| |n-r| - 1 | - k \neq 0$

$| |n-r| - 1 | \neq k$



$k=1$ ✓ $y=1$ "مقدار 3 با بر تقاطع دارد"

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

$\mathbb{R} - \{-1, -2, +1\} \rightarrow n=3$

$n^2 - 4n + 4 = 0 \quad (n-2)^2 = 0 \quad \checkmark n=2$
مضاعف

(r)

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

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

$\Rightarrow D_f = (0, 1)$ ✓

$\log \frac{1}{r} > 0 \rightarrow$ *بین 0 و 1 بین منفرجه باشد تا جواب مثبت در بیاید این شرط را*

(r)

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

$f(3n^2-1)$

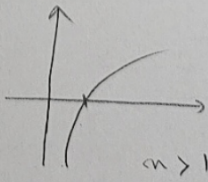
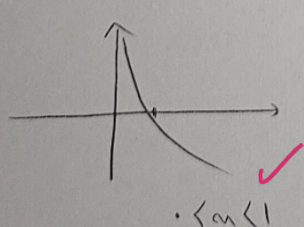
$-2 \leq 3n^2-1 \leq 2$

$-1 \leq 3n^2 \leq 3$

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

$D_f = \left[-\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}\right]$ ✓

(r)



ابن 9