

19,8

[0, 2]

بنا خط

نکات

الف) $f(n) = \begin{cases} 2\sin^2(n + \frac{\pi}{2}) - 1 \\ [0, 1] \end{cases} \Rightarrow R_f = [-1, 1]$ (2)

ب) $g(n) = \begin{cases} \cos^2 n - 1 \\ [-1, 1] \end{cases} \Rightarrow R_g = [-1, 1]$

$y = \frac{n}{|n|} + [n]$

$\begin{cases} n > 0 \rightarrow [n] + 1 \\ n < 0 \rightarrow [n] - 1 \end{cases}$

$n = 3 \rightarrow (5)$

$-1 \leq n < 0 \rightarrow (-2)$

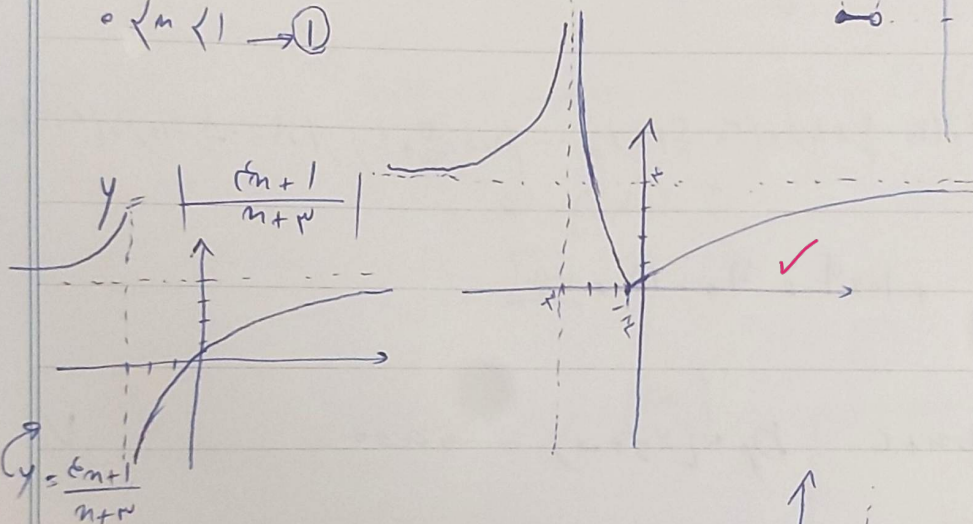
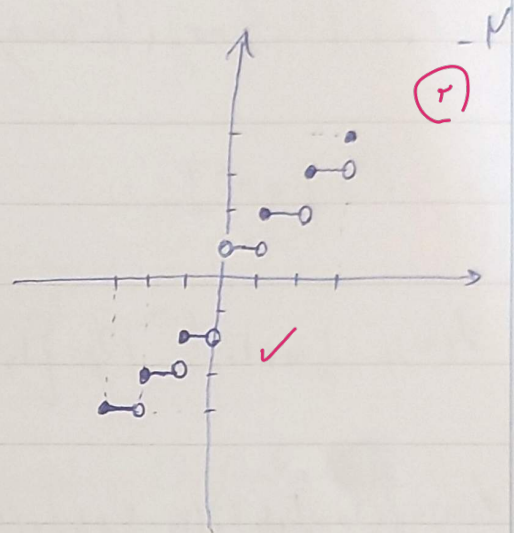
$2 \leq n < 3 \rightarrow (3)$

$-2 \leq n < -1 \rightarrow (-3)$

$1 \leq n < 2 \rightarrow (2)$

$-3 \leq n < -2 \rightarrow (-4)$

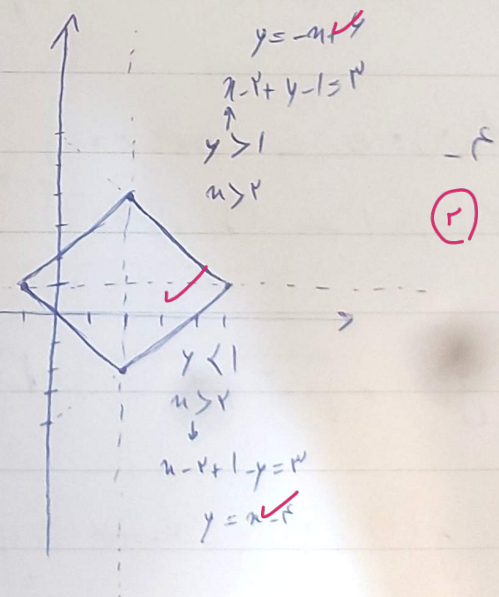
$0 \leq n < 1 \rightarrow (1)$



$|m-2| + |y-1| \leq 3$

$y > 1$
 $n < 2$
 $2 - n + y - 1 \leq 3$
 $y = n + 2$

$y < 1$
 $n < 2$
 $2 - n + 1 - y \leq 3$
 $y = -n$



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$$c) y = n + \frac{1}{n} + r \sqrt{n + \frac{1}{n}} \xrightarrow{\sqrt{n + \frac{1}{n}} = t} y = t^2 + r t \quad -d \quad (r)$$

$$n + \frac{1}{n} \xrightarrow{n \rightarrow \infty} [r, +\infty) \Rightarrow R_y = [r^2, +\infty)$$

$$\rightarrow y = (r^2 - \sin^2 n) (1 + \sin n) \xrightarrow{\sin n = t} y = -t^2 + r t + r^2 \rightarrow \text{Max} \left| \frac{-r}{-2} = \frac{r}{2} \right|$$

$t = -1 \rightarrow y = 0$

$$\Rightarrow R = [0, r^2]$$

$$f(n) = -\frac{1}{n} n + 10 \quad D_f = \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \quad (r) - \gamma$$

$$f(n) = \left\{ \left(1, -\frac{1}{1} + 10\right), \left(2, -\frac{1}{2} + 10\right), \left(3, -\frac{1}{3} + 10\right), \dots, \left(9, -\frac{1}{9} + 10\right) \right\}$$

$$\Rightarrow \left(-\frac{1}{9} + 10\right) \times \frac{1}{9} + 10 \times 9 = 90 - 10 = 80 \quad \checkmark$$

$$f(n) = \sqrt{an^2 + bn + c} \quad D_f = [r, +\infty) \rightarrow a \leq 0 \quad \checkmark$$

(1.5)

$$\begin{aligned} f(x) &\leq 0 \rightarrow 2b + c = 0 \\ f(x) &\leq 1 \rightarrow 11b + c = 1 \end{aligned} \quad \left\{ \begin{array}{l} b = 1 \\ c = -2 \end{array} \right.$$

$$g(n) = \sqrt{n^2 + r} \quad D_g = \mathbb{R}$$

بر این 9 ؟

$$g(0) = r \quad n \rightarrow \infty \rightarrow g(n) = +\infty$$

$$D_g \rightarrow [0, +\infty)$$

صفحه آخر...

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Lösungsskizze

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

$$\text{Min} \left| \begin{array}{l} \frac{y}{x} = 1 \\ -1 \end{array} \right|$$

$$D_f = \mathbb{R} - \{-1\}$$

$$n^2 - 1n - 1 = 0$$

$$(n+1)(n+1) = 0 \rightarrow n = -1$$

$$R_f = [-1, +\infty) - \{1\} \rightarrow C = -1$$

$$f(-1) = \text{undefined}$$

$$y = \sqrt[n]{n^2 + an + b} \xrightarrow{\text{Bsp.}} \sqrt[n]{(n-1)^2} = n-1 \quad (r) - 9$$

$$(n-1)^2 = n^2 - 2n + 1 \rightarrow a = -2 \quad b = 1 \quad D = [-2, 1]$$

$$n = -2 \rightarrow y = 1$$

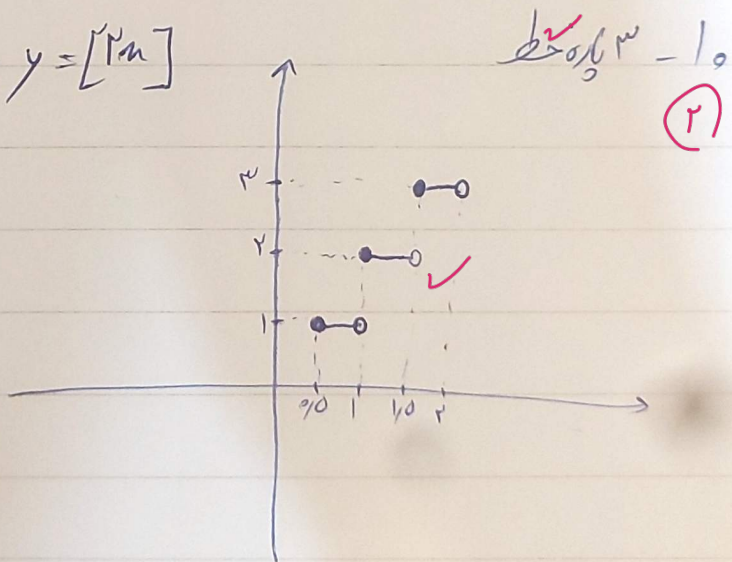
$$n = 1 \rightarrow y = 0 \rightarrow R = [-2, 1]$$

$$y = [n] + \left[n + \frac{1}{n}\right] \Rightarrow y = [2n]$$

$$\frac{1}{n} < n < 1 \rightarrow y = 1$$

$$1 < n < 10 \rightarrow y = 2$$

$$10 < n < 100 \rightarrow y = 3$$



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۷- با توجه به دامنه، زیر رادیکال خط با شیب مثبت بوده یعنی $a=0$ است و نقطه $(2,0)$ هم در معادله خط صدق میکند...

$$\begin{cases} (2,0) \rightarrow 2b+c=0 \\ (3,1) \rightarrow 3b+c=1 \end{cases} \rightarrow b=1, c=-2$$

$$g(x) = \sqrt{x^2+4} \rightarrow \text{ext} \Big|_4 \Rightarrow R_g = \sqrt{[4, +\infty)} = [2, +\infty)$$