

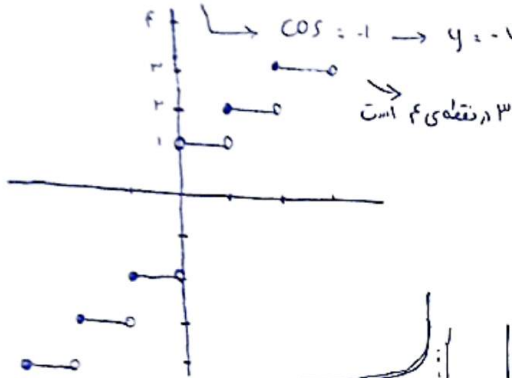
1 حل $r \sin^2(n + \frac{\pi}{r}) = 1 \rightarrow n + \frac{\pi}{r} = 0 \rightarrow y = -1$
 $\rightarrow n + \frac{\pi}{r} = 1 \rightarrow y = 1$ } $R = [-1, 1]$

(2)

2 $r \cos^2 n = 1 \rightarrow \cos = 1 \rightarrow y = 1$
 $\rightarrow \cos = -1 \rightarrow y = -1$ } $R = [-1, 1]$

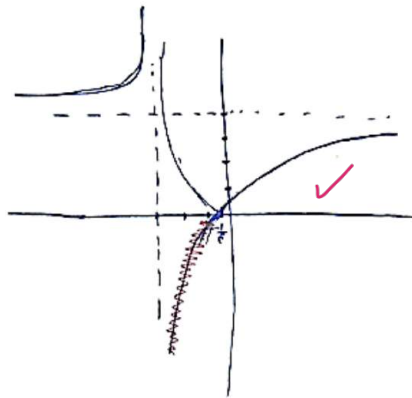
(2)

3



(2)

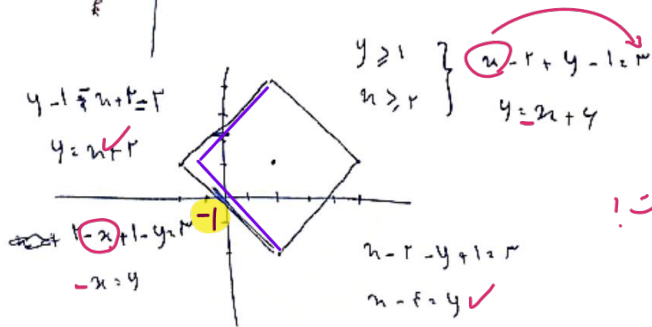
4



(1, 2)

5

$|x-2| + |y-1| = 3$



وقت!

6 الف $f(n) = n + \frac{1}{n} + \sqrt{n + \frac{1}{n}}$

$[1, +\infty) \rightarrow [1 + \sqrt{2}, +\infty) \rightarrow R = [1 + \sqrt{2}, +\infty)$

(2)

ب $(1 - \sin n)(1 + \sin n) = -(\sin^2 n - 1 \sin n - 1) \rightarrow \sin n = 1 \rightarrow y = 1$
 $\rightarrow \sin n = -1 \rightarrow y = -1$
 $\rightarrow \sin n = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = 1 \rightarrow y = 1$ } $R = [0, 1]$

$$\frac{1}{r} \underbrace{(1 + r_1 + \dots + r_n)}_{f_0} + q_0 = \boxed{15}$$

(2)

$$\checkmark a = \checkmark$$

$$\begin{cases} rb + c = 0 \\ rb + c = 1 \end{cases} \rightarrow \begin{cases} b = 1 \\ c = -1 \end{cases}$$

$$\rightarrow \sqrt{n^2 + 4} \rightarrow R = [2, +\infty)$$

جاهل بنفیس:

(1, 15)

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

$$\rightarrow n^2 - 4 = 1 \rightarrow n^2 - 4 = 1 \rightarrow n^2 - 4 - 1 = 0$$

$$(n-2)(n+2) = 0 \rightarrow n = -2, 2$$

(2)

$$n^2 - 4 \rightarrow \epsilon a_n \rightarrow \epsilon \rightarrow c = -1$$

$$f\left(\frac{-2+2}{-2}\right) = f(-1) = 1, 2 \rightarrow \boxed{13}$$

$$\sqrt{n^2 + an^2 + bn} = \sqrt{(n-4)^2} \rightarrow n^2 - 8n^2 + 16n - 1 \rightarrow a = -4, b = 16$$

(2)

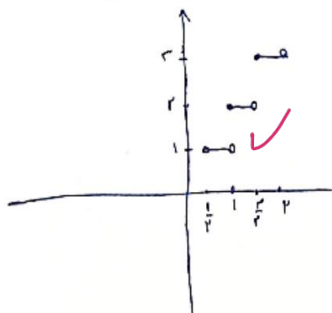
$$D = [-4, 12] \rightarrow x = -4 \rightarrow y = -1 \rightarrow R = [-1, 0]$$

$$\frac{1}{r} y_2 [n] + [n + \frac{1}{r}] \rightarrow D = [\frac{1}{r}, 2]$$

$$\frac{1}{r} \leq x < 1 \rightarrow y = 1$$

$$1 \leq x < \frac{r}{r} \rightarrow y = 2$$

$$\frac{r}{r} \leq x < 2 \rightarrow y = 2$$



سه پاره خط

(1, 15)

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

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

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