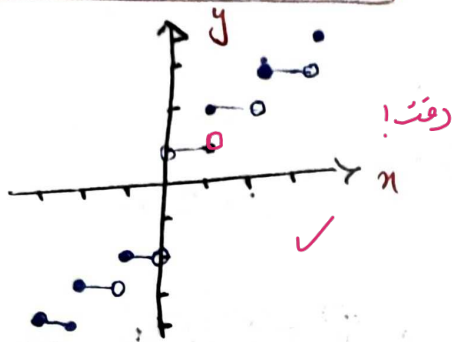


الف) $0 \leq \sin^2\left(m + \frac{\pi}{2}\right) \leq 1 \Rightarrow 0 \leq \sin^2\left(m + \frac{\pi}{2}\right) \leq 1 \Rightarrow -1 \leq \sin\left(m + \frac{\pi}{2}\right) \leq 1$

$R = [-1, 1]$

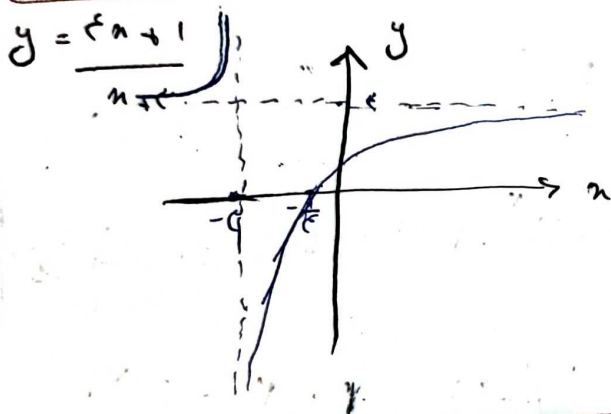
$-1 \leq \cos^2 m \leq 1 \Rightarrow -2 \leq \cos^2 m \leq 2 \Rightarrow -\sqrt{2} \leq \cos m \leq \sqrt{2}$

$\Rightarrow R = [-\sqrt{2}, \sqrt{2}]$

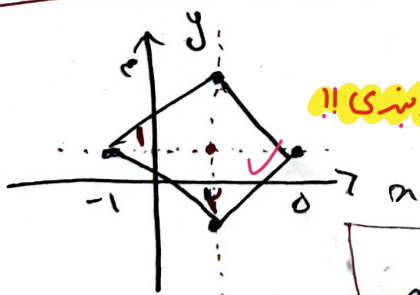
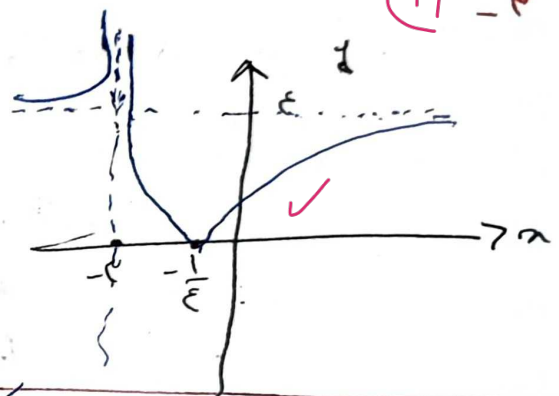


$f(m) = 2$

$-4 \leq m < -2$
$-2 \leq m < -1$
$-1 \leq m < 0$
$0 \leq m < 1$
$1 \leq m < 2$
$2 \leq m < 3$



تقاطع
بمهر m



رکز (1, 1) و r=2

باصطفا بنویس!!

$f(m) = m + \frac{1}{m} + 2\sqrt{m + \frac{1}{m}}$

$m + \frac{1}{m} = t \Rightarrow f(m) = t + 2\sqrt{t}$

$t \leq 2 \leq t \Rightarrow t \geq 2$

$\Rightarrow f_{\min} = 2 + 2\sqrt{2} \Rightarrow R_f = [2 + 2\sqrt{2}, +\infty)$

$t = \sin m, -1 \leq t \leq 1 \Rightarrow y = (2-t)(t+1) \Rightarrow y = 2 + 2t - t^2$

$\Rightarrow y = 2 - (t-1)^2 \Rightarrow 0 \leq y \leq 2 \Rightarrow R_f = [0, 2]$

$$9 \Rightarrow (9 \times 10) + \frac{1+2+3+\dots+9}{2} = 90 - 12 = 78 \quad (2) \quad -6$$

$$\star \Rightarrow \frac{(9 \times 10) + 8}{2} = 18 \quad \left. \begin{array}{l} f(r) = 0 \Rightarrow 9a + 3b + c = 0 \\ f(r) = 1 \Rightarrow 9a + 3b + c = 1 \end{array} \right\} \quad (15) \quad -7$$

$$\Rightarrow 3a + b = 1 \quad D_f = [2, +\infty) \Rightarrow f \text{ نتيجه} = 1 \quad a = 0$$

$$\Rightarrow b = 1, c = 2$$

$$R_g = [2, +\infty)$$

$$g(n) = \sqrt{n^2 - 2(-2)} = \sqrt{n^2 + 4}$$

صفحه آخر...

$$f(n) = \frac{n(n+2)(n-1)}{n+2} \xrightarrow{n \neq -2} f(n) = n^2 - 2n, \quad \bullet \bullet \bullet \wedge \notin R_f \quad (2) \quad -8$$

$$\Rightarrow n^2 - 2n - 1 \neq 0 \Rightarrow (n+2)(n-1) \rightarrow \text{فاصله دارند} \quad n \neq -2, n \neq 1$$

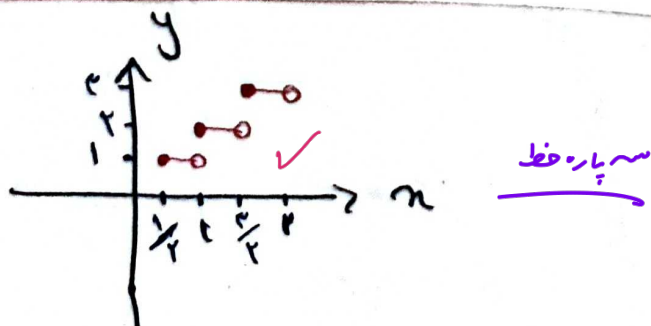
$$\Rightarrow a = -2, b = 1 \Rightarrow n^2 - 2n = (n-1)^2 - 1 \Rightarrow -1 = \text{کمترین مقدار تابع}$$

$$\Rightarrow c = -1 \rightarrow f\left(\frac{-2+1}{-2}\right) = f(-1) = 1 + 2 + 1 = 4 \quad (2) \quad -9$$

$$\sqrt{(n+k)^2} = \frac{n+k}{2} \Rightarrow k^2 = -1 \Rightarrow k = -1 \Rightarrow \text{تابع خطی} \quad (2) \quad -9$$

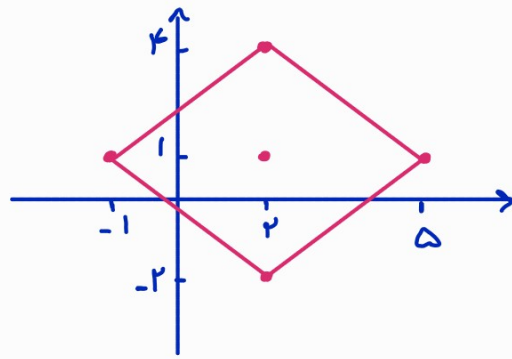
$$\sqrt{(n-2)^2} = n^2 + an^2 + bn - 1 = n^2 + 9n^2 + 12n - 1 \Rightarrow a = -9, b = 12$$

$$D_f = [2, 12] \Rightarrow R_f = [-1, 10]$$



$$\begin{array}{l} 1 \leftarrow n \in [2, 3) \\ 2 \leftarrow n \in [3, 4) \\ 3 \leftarrow n \in [4, 5) \\ 4 \leftarrow n \in [5, 6) \\ 5 \leftarrow n \in [6, 7) \\ 6 \leftarrow n \in [7, 8) \\ 7 \leftarrow n \in [8, 9) \\ 8 \leftarrow n \in [9, 10) \\ 9 \leftarrow n \in [10, 11) \\ 10 \leftarrow n \in [11, 12) \end{array} \quad (15) \quad -10$$

$$\begin{cases} x > 2, y > 1 \rightarrow y = -x + 4 \\ x > 2, y \leq 1 \rightarrow y = x - 4 \\ x \leq 2, y > 1 \rightarrow y = x + 2 \\ x \leq 2, y \leq 1 \rightarrow y = -x \end{cases}$$



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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...

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

$$g(x) = \sqrt{x^2 + 4} \rightarrow \left. \text{ext} \right|_x^0 \Rightarrow R_g = \sqrt{[2, +\infty)} = [2, +\infty)$$