

الف) $m = \sqrt{n^2 - n - 2}$ $\rightarrow$ $\begin{cases} n = -1 \rightarrow (-1, -2) \\ n = 2 \end{cases}$ ①

$\rightarrow m = \sqrt{n^2 - n - 2}$ ✓

ب) $m = \sqrt{n^2 - n - 2}$ $\rightarrow (a, 1) \rightarrow a = -1 \rightarrow (1, n) \rightarrow n = 2$ ②

$R_{n-1} \stackrel{n \geq 1}{=} [1, +\infty)$, $R_{n, a} \rightarrow (-\infty, 1+a)$ ⑤

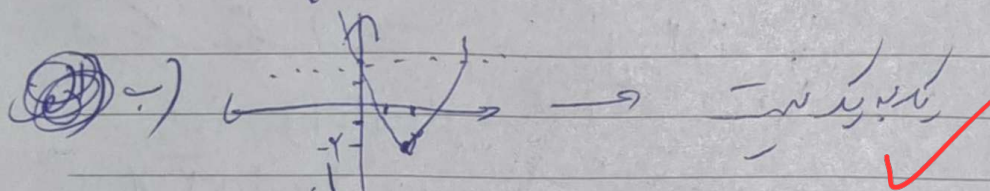
$n = 0 \rightarrow 2 \geq 1+a \rightarrow a \leq 1 \rightarrow (-\infty, 1]$ ②

نسبت می تواند منفی و صفر باشد $a > 0$ (I) ⑥

$n \leq 0 \rightarrow R_f = (-\infty, a-1]$ ②

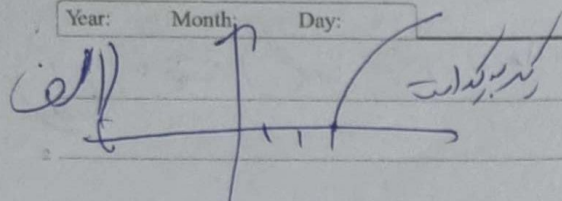
$a-1 \leq 2 \rightarrow a \leq 3$ (II) I و II $\rightarrow (0, 3]$ ③

الف) $x = y^3 + 2 \rightarrow x - 2 = y^3 \rightarrow y = \sqrt[3]{x-2} = f(x)$ ④



الف) $y_n - 2y = \sqrt[n]{n+1} \rightarrow y_n - \sqrt[n]{n} = 1 + 2y$ ⑦
 $\rightarrow x(y - \sqrt[n]{n}) = 1 + 2y \rightarrow x = \frac{1+2y}{y - \sqrt[n]{n}} \rightarrow f(x) = \frac{1+2y}{y - \sqrt[n]{n}}$ ②

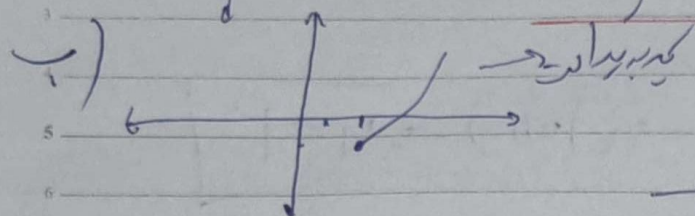
ب) $\frac{2(n+2)}{(n+2)} = 2$ $y = 2$ ②



کدام یک است

$$x = \sqrt{y-3} \rightarrow x^2 + 3 = y \rightarrow f(x)^{-1} = x^2 + 3 \quad (4)$$

$$D_f = [0, +\infty)$$



کدام یک است

$$x = y^2 - 4y + 3 + 1 - 1 = (y-2)^2 - 1 \quad (2)$$

$$\rightarrow f(x)^{-1} = \pm \sqrt{x+1} + 2$$

منش قابل قبول

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

نیت چون دامنه اوله

$$D_f = [-1, +\infty)$$

بزرگتر از 2 است

$$y = x + \sqrt{x} \rightarrow x = y + \sqrt{y} / \sqrt{y} = t \rightarrow t^2 + t = x = \left(t + \frac{1}{2}\right)^2 - \frac{1}{4} \quad (5)$$

$$\rightarrow x + \frac{1}{4} = \left(t + \frac{1}{2}\right)^2 - \sqrt{x + \frac{1}{4}} - \frac{1}{4} = t \rightarrow \sqrt{y} = \sqrt{x + \frac{1}{4}} - \frac{1}{4} \quad (2)$$

$$\rightarrow y = x + \frac{1}{4} + \frac{1}{4} - \sqrt{x + \frac{1}{4}} = x + \frac{1}{2} - \sqrt{x + \frac{1}{4}} \rightarrow a = 1/b = 1/c = -\frac{1}{4}$$

$$a + 2b + 4c = 1 + 1 - 1 = 1$$

1 اگر تابع را به توان در می آوریم علامتی خود را بر ا $x_1 = \pm x_2$ می شود و می توانیم دو مقدار داشته باشیم

باید اثبات یک به یک بودن به تعریف ریاضی نوشته شود

$$x = \frac{y}{\sqrt{y^2 - 2}} \rightarrow x^2 = \frac{y^2}{y^2 - 2} \rightarrow x^2 y^2 - 2x^2 = y^2 \rightarrow x^2 y^2 - y^2 = 2x^2 \rightarrow y^2 (x^2 - 1) = 2x^2$$

$$y = \frac{a_1}{\sqrt{a_1^2 - 2}} \text{ و } y = \frac{a_2}{\sqrt{a_2^2 - 2}} \rightarrow a_1 = a_2 \rightarrow y^2 = \frac{2x^2}{x^2 - 1} \rightarrow y = \pm \sqrt{\frac{2x^2}{x^2 - 1}}$$

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

چون x و y هم علامت دارند

$$\sqrt{x} - 1 = -\frac{2}{\omega} \rightarrow \sqrt{x} = \frac{\omega - 2}{\omega} \rightarrow x = \frac{(\omega - 2)^2}{\omega^2} \rightarrow g(x)^{-1} = \frac{2}{\omega} \quad (9)$$

$$f\left(\frac{x}{1+|x|}\right) = x \rightarrow \frac{x}{1+|x|} = \frac{\omega^2}{\omega} \rightarrow \omega x = -2 + 2x \rightarrow 3x = -2 \rightarrow x = -\frac{2}{3}$$

Senobar $\rightarrow f\left(-\frac{2}{\omega}\right) + g^{-1}\left(-\frac{2}{\omega}\right) = \frac{2}{\omega} - \frac{2}{\omega} = \frac{2\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{2}} \quad (2)$

این معادله را حل کنید

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$$\cancel{f(x)} x = \sqrt[3]{y-1} \rightarrow x^3 + 1 = y = f(x) / g(\underbrace{x^3+1}_{+1} + \underbrace{\sqrt{x^3+1}}_{+}) = g^{-1}(12)$$

$$\rightarrow t^3 + t - 12 = 0 \begin{cases} \rightarrow t = 3 \rightarrow \sqrt{x^3+1} = 3 \rightarrow x = 2 \\ \rightarrow t = -4 \rightarrow -4 = \sqrt{x^3+1} \text{ جواب ندارد} \end{cases} \rightarrow g^{-1}(12) = \textcircled{2}$$

$g^{-1}(12) = \textcircled{2}$