

نکات

الف) $\frac{n-1}{n} - \frac{n}{n-1} > 0$

①

$$\frac{(n-1)^2 - n^2}{n(n-1)} = \frac{n^2 - 2n + 1 - n^2}{n(n-1)} = \frac{1 - 2n}{n(n-1)} > 0$$

$$\begin{array}{c|ccc} & 0 & \frac{1}{2} & 1 \\ \hline & + & \frac{1}{2} & - \\ & \frac{1}{2} & - & \frac{1}{2} \\ & - & & - \end{array}$$

$$D_f = (-\infty, 0) \cup \left[\frac{1}{2}, 1\right)$$

ب) $\frac{2}{n-1} + \frac{1}{n+2} \neq 0$

$$\frac{2n+2+n-1}{(n-1)(n+2)} = \frac{3n+1}{(n-1)(n+2)} \neq 0 \rightarrow n \neq -\frac{1}{3} \quad (I)$$

از طرف دیگر هیچ یک از کسرها صفر نمی شود.

$$n \neq -1, 0, 1, -2 \quad (II)$$

$$D_f = (I) \cap (II) = \mathbb{R} - \left\{-2, -\frac{1}{3}, -1, 0, 1\right\}$$

$$\text{الف) } \left(\left(\frac{1}{x}\right)^m - 9\right) (x^2 - 2^m) \geq 0 \quad (2)$$

$$\begin{array}{c|c} -2 & \frac{2}{x} \\ \hline + & - & + \end{array} \quad D_f = (-\infty, -2] \cup \left[\frac{2}{x}, +\infty\right)$$

$$\text{ب) } \sqrt{y+1} = 3 - \sqrt{m-1}$$

$$\rightarrow m-1 \geq 0 \quad m \geq 1 \quad (I)$$

المفروض معين $\sqrt{y+1}$ هو دالة ناصقة است. $3 - \sqrt{m-1}$
 $\sqrt{m-1}$ ≤ 3
 $m-1 \leq 1 \Rightarrow m \leq 12 \quad (II)$

$$D_f = [1, 12] \quad (I) \cap (II)$$

$$m^2 - m - 2 > 0 \quad \begin{array}{c|c} -1 & 2 \\ \hline + & - & + \end{array} \quad (I) \quad (3)$$

$$m^2 - 1 \geq 0$$

$$m^2 > 1 \Rightarrow m > 1 \text{ or } m < -1 \quad (II)$$

$$\sqrt{m^2 - 1} + 1 \neq 0$$

$$\sqrt{m^2 - 1} \neq -1 \quad (\text{اين شرط هو دالة ناصقة است.}) \quad (III)$$

PARAMOUNT

$$Df = (I) \cap (II) \cap (III) = (-\infty, -1) \cup (2, +\infty)$$

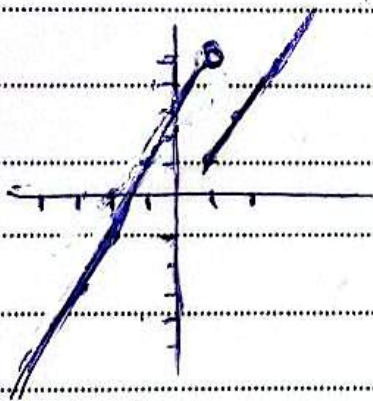
$$f(x) = 0 \rightarrow \sqrt{3 - 2x - x} = 0$$

$$x = -\frac{1}{2}$$

$$f(b) = \sqrt{3 - \frac{b}{2} - b^2} = 0 \xrightarrow{x=2} 2b^2 + b - 4 = 0$$

$$b = \frac{-1 \pm \sqrt{1 + 48}}{4} = \frac{4}{4}, -\frac{5}{4} \rightarrow \text{(چون جذورت یه بازه است)} \\ \text{این غیر قابل قبول}$$

$$x + b = -\frac{1}{2} + \frac{4}{4} = 1$$



$$f(x) = x, 0$$

$$f(x) = x, x$$

$$Df = [-3, +\infty)$$

(دامنه از 3 به بالا غیر است)

$$\sin \frac{\pi}{2} + \cos \frac{\pi}{2} = \frac{\sqrt{2}}{2} + 1 = \frac{\sqrt{2} + 2}{2}$$

$$f\left(\frac{\sqrt{2} + 2}{2}\right) = 2\left(\frac{\sqrt{2} + 2}{2}\right)^2 - 2\left(\frac{\sqrt{2} + 2}{2}\right)$$

$$f\left(\frac{\sqrt{2} + 2}{2}\right) = -\frac{1}{2}$$

PARAMOUNT

$$f(a) = \frac{a+1}{a-1}$$

①

$$f(f(a)) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = a$$

$$\frac{a+1+a-1}{a-1}$$

$$\frac{a+1-a+1}{a-1}$$

$$= \frac{2a}{2} = a$$

به دلیل در صد اعتبار از آنجا که عبارت به صورت یک است بجز 1 را خروج از خروجی می‌کنیم

$$f(g(a)) = -\varepsilon \Rightarrow a^2 - \varepsilon a = -\varepsilon$$

②

$$a^2 - \varepsilon a + \varepsilon = 0$$

$$a = \varepsilon$$

$$g(a) = \varepsilon \Rightarrow \sqrt{a^2 - 1} = \varepsilon$$

$$a = \pm \sqrt{\omega}$$

$$f(\varepsilon) = 1 - \omega + \varepsilon = \varepsilon$$

③

$$f(-\varepsilon) = (-\varepsilon)^2 - \omega(-\varepsilon) + \varepsilon = \varepsilon^2$$

$$f(\varepsilon) \times f(-\varepsilon) = \varepsilon \times \varepsilon^2 = \varepsilon^3$$

P

Date :

Subject :

$$r \cos^2 \theta + \omega \cos \theta = \mu, \delta \xrightarrow{\times r} \Lambda \cos^2 \theta + 10 \cos \theta = V \quad (1)$$

$$\Lambda \cos^2 \theta + 10 \cos \theta - V = 0$$

$$\cos \theta = \frac{-10 \pm \sqrt{100 + 4V\Lambda}}{2\Lambda} = \frac{1}{2}, \frac{-V}{\Lambda}$$

(این مورد غیر قابل قبول است)

است زیرا $\cos \theta$ همواره

بین -1 تا 1 است.

$$\sin^2 \theta + \cos^2 \theta = 1 \rightarrow \sin^2 \theta = 1 - \frac{1}{4} = \frac{3}{4}$$

$$\sin \theta = \frac{\sqrt{3}}{2}$$

$$f(r, \theta) = \mu$$