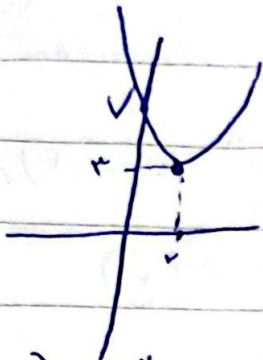


٢٥

ا) $x^2 - (x+1) \rightarrow x^2 - x - 1 = 0$

عسل طاهر

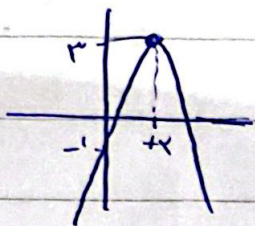


$\Delta = b^2 - 4ac = 1 + 4 = 5$

وان

٢٦

ب) $-x^2 + (x+1) = 0 \rightarrow -x^2 + x + 1 = 0$



$\Delta = b^2 - 4ac = 1 + 4 = 5$

$x^2 + (m+1)x + \frac{1}{2}m + 1$

وان

ا) $\Delta < 0 \rightarrow b^2 - 4ac < 0 \rightarrow (m+1)^2 - 4(\frac{1}{2}m + 1) < 0$
 $\rightarrow m^2 + 2m + 1 - 2m - 4 < 0 \rightarrow m^2 - 3 < 0$
 $\rightarrow m \in (-\sqrt{3}, \sqrt{3})$

ب) $\Delta = 0 \rightarrow b^2 - 4ac = 0 \rightarrow (m+1)^2 - 4(\frac{1}{2}m + 1) = 0$

$m = -3$

ج) $\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow (m+1)^2 - 4(\frac{1}{2}m + 1) > 0$

$m \in (-\sqrt{3}, \sqrt{3})$

د) $\Delta < 0 \rightarrow m \in (-\sqrt{3}, \sqrt{3})$

$y = (m-1)x^2 - x(m+1) + 1$

وان

س) $\Delta < 0$ P) > 0 $\Delta > 0$ $\Rightarrow \emptyset$

ا) $\Delta < 0$

$\frac{1}{m-1} < 0 \rightarrow m < 1$
 $\frac{-1}{2(m-1)} > 0 \rightarrow m < 1$
 $\Rightarrow m \in (-\infty, 1)$

٢٧

ب) یکی از ریشه‌های معادله از ریشه‌های مثبت بزرگتر است پس جمع ریشه‌ها باید منفی شود و حاصل ضرب آن‌ها هم منفی باشد

$$y = (m-x)x^2 - 2(m+1)x + 1 = 0$$

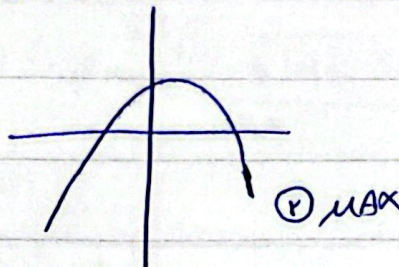
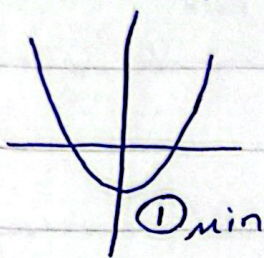
$$S < 0 \quad P < 0 \quad \rightarrow \quad \frac{2m+2}{m-2} < 0 \quad \rightarrow \quad \frac{-1}{1-} \frac{2}{+} \rightarrow (-1, 2) \quad (1)$$

$$\rightarrow \frac{1}{m-2} < 0 \quad \rightarrow \quad - \frac{2}{+} \rightarrow (-\infty, 2) \quad (2)$$

$$\rightarrow (1) \cap (2) \rightarrow (-1, 2)$$

$$(m-x)x^2 - 2(m+1)x + 1 = 0$$

سوالی ← ایند



برای آخر

$$\text{MAX} \begin{cases} m-2 < 0 \rightarrow m < 2 \\ \Delta > 0 \rightarrow \text{دو ریشه} \\ \frac{C}{a} < 0 \Rightarrow \frac{1}{m-2} < 0 \Rightarrow \frac{2}{-} \frac{1}{+} \rightarrow (-\infty, 2) \end{cases}$$

$$\text{min} \begin{cases} m-2 > 0 \Rightarrow m > 2 \\ \Delta > 0 \Rightarrow \text{دو ریشه} \\ \frac{C}{a} < 0 \Rightarrow \frac{1}{m-2} < 0 \Rightarrow \frac{2}{-} \frac{1}{+} \rightarrow (-\infty, 2) \end{cases} \Rightarrow \emptyset$$

$$x = -2 \rightarrow \frac{-b}{2a} = \frac{2(m+1)}{2(m-2)} = -2 \rightarrow \frac{m+1}{m-2} = -2$$

$$\rightarrow -2m + 2 = m + 1 \rightarrow -3m = -1 \rightarrow m = \frac{1}{3}$$

$$\frac{1}{2}x^2 - (2\sin\alpha)x + \frac{1}{2} = 0 \xrightarrow{\text{روشن کرد}} x^2 - (4\sin\alpha)x + 1 = 0$$

$$\rightarrow (x - \sin\alpha)(x - \sin\alpha) \rightarrow \sin\alpha = \pm 1$$

$$(-1) \rightarrow \frac{1}{2}x^2 + 2x + \frac{1}{2} = 0 \rightarrow x = -1$$

$$(+1) \rightarrow \frac{1}{2}x^2 - 2x + \frac{1}{2} = 0 \rightarrow x = 1$$

$$y = \frac{(x^2 - x - 1)(x^2 - x - 4)}{1 - x^2} = \frac{-1}{(x-1)(x+1)} (x - \frac{1}{2})(x + \frac{1}{2}) \leftarrow \text{سوال 4}$$

$$\rightarrow (-1)(x + \frac{1}{2})(x - \frac{1}{2}) = (-1)(x^2 - \frac{1}{4}) = (1-x)(x+1)$$

$$\rightarrow \text{MAX } f = \frac{-b}{2a} = \frac{-\frac{1}{4}}{-1} = \frac{1}{4} \quad y_{\text{MAX}} = \frac{1 \cdot 0.9}{1 \cdot 1} \quad \leftarrow \text{سوال 5}$$

$$\text{MAX } (m+1)x - 2$$

سوال 5

$$f(a+b) = a(a+b) + v \rightarrow v \left(\frac{m+1}{m} \right) = a \left(-\frac{v}{m} \right) + v$$

$$\rightarrow \frac{vm+1}{m} = -\frac{1}{m} + v \rightarrow \frac{vm+1}{m} = \frac{vm-1}{m}$$

$$\rightarrow vm+1 = vm-1 \rightarrow 1 = -1 \rightarrow m = 1$$

$$\rightarrow y = x^2 - 4x - 2 \rightarrow a+b = 1 \rightarrow (a+b)^2 - 2ab = \frac{16}{14} + 1$$

$$\rightarrow \frac{16}{14} = \frac{16}{14}$$

$$x^2 - 2x + 1 = 0$$

سوال 6

$$\frac{a+b}{a+b} \rightarrow \frac{a}{a} + \frac{b}{b} \rightarrow \frac{a}{a} + \frac{b}{b}$$

$$a+b = 1 \rightarrow a+b = 1 \rightarrow b = \frac{1}{a} \rightarrow \frac{a}{a} + \frac{1}{a} \rightarrow \frac{a^2}{a} \quad \leftarrow \text{سوال 7}$$

$$\rightarrow \frac{a^2}{a} + \frac{1}{a} \rightarrow \frac{(a+b)^2 - 2ab}{(a+b)} \rightarrow (a)^2 - 2(1)(1)$$

$$\rightarrow \frac{1 \cdot 1 - 2}{1} = \frac{-1}{1} = -1$$

$$y = ax^2 + bx + c \rightarrow ax^2 + bx + c$$

سوال 8

$$y_1, y_2 \rightarrow 1 \rightarrow x = -\frac{b}{a} \rightarrow \{a+4a+1 \rightarrow 1+4a+1 \rightarrow a+1\}$$

$$ax^2 + bx + c \rightarrow \frac{x^2}{x^2} \rightarrow \{a+b+c \leq 1\} \rightarrow \{a+b \leq 1\}$$

$$\rightarrow x^2 + bx + c \rightarrow x = -\frac{b}{a} = \frac{-b}{a}$$

$$y = 2x^2 + (m+1)x + m + 4$$

روان

مماس بودن بر خط یعنی اینکه در دو نقطه در هم قرار بگیرد و یک نقطه را داشته باشد

$$2x^2 + (m+1)x + m + 4 = 0 \rightarrow 2x^2 + mx + m + 4 = 0$$

$$\rightarrow \Delta = 0 \rightarrow m^2 - 8m - 48 \rightarrow (m - 12)(m + 6)$$

$$\xrightarrow{m=12} 2x^2 + 13x + 16 \rightarrow \Delta < 0$$

$$\xrightarrow{m=-6} 2x^2 - 5x + 2 \rightarrow \Delta > 0 \checkmark$$

$$\begin{array}{l} m = 12 \text{ X} \\ m = -6 \checkmark \end{array}$$