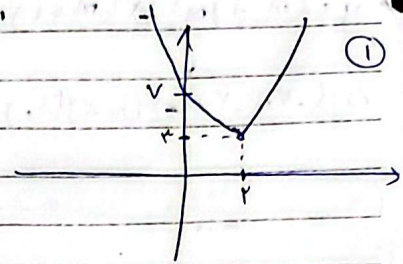
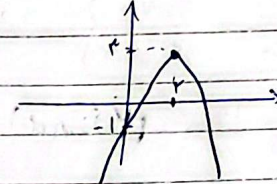


(الف) $y = x^2 - 4x + 4 \Rightarrow \frac{-b}{2a} = \frac{4}{2} = 2, \frac{-\Delta}{4a} = 1 \rightarrow A|2$



(ب) $y = -x^2 + 4x - 4 \Rightarrow \frac{-b}{2a} = \frac{-4}{-2} = 2, \frac{-\Delta}{4a} = 1 \rightarrow A|2$



$b^2 - 4ac = (m+1)^2 - 4(2)(\frac{1}{2}m+2) = m^2 + 1 + 2m - 4m - 8 = m^2 - 2m - 7 \Delta > 0$ (الف) (ع)
 $(m-5)(m+3) > 0 \rightarrow m \in (-\infty, -3) \cup (5, +\infty)$ $m^2 - 2m - 7 = (m-5)(m+3)$

$\Rightarrow (m-5)(m+3) = 0 \rightarrow m = -3 \cup m = 5$

$(m-5)(m+3) < 0 \rightarrow \frac{-3}{+} \frac{5}{-} \frac{+}{+} \rightarrow m \in (-3, 5)$

$(m-5)(m+3) > 0 \rightarrow \frac{-3}{+} \frac{5}{+} \frac{+}{+} \rightarrow m \in (-\infty, -3] \cup [5, +\infty)$

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

$\Delta = 4m^2 - 4(m+1)^2 \Delta < 0$ (ع)

(الف) $\Delta > 0$
 $(-2m-2)^2 - 4(m-2)(1) = 4m^2 + 8m + 4 - 4m + 8 = 4m^2 + 4m + 12 = 4(m^2 + m + 3) > 0$ $\Delta > 0$ و $S < 0$ و $P > 0$ (الف)

(II) $S = \frac{-b}{a} = \frac{2(m+1)}{m-2} < 0$ $\frac{-1}{+} \frac{2}{-} \frac{+}{+} \rightarrow -1 < m < 2$

(III) $P = \frac{c}{a} = \frac{1}{m-2} > 0 \rightarrow m > 2 \rightarrow m > 2$

جواب: m باید در بازه $(-1, 2)$ باشد تا $S < 0$ و $P > 0$ و $\Delta > 0$ باشد.

$P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m < 2 \rightarrow m < 2$ (ع)

$S < 0$ $P < 0$ (ب)

$S < 0 \rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow -1 < m < 2$ (II) $\Delta < 0$ $\rightarrow m = 1 \pm \frac{1}{\sqrt{3}}$ $|x_1| = |x_2| \rightarrow S = 0$
 $\Delta < 0$ $\rightarrow m = 2$ $\rightarrow m = 2$ $\rightarrow m = 2$

$\rightarrow m \in (-1, 2)$ $\leftarrow$ جواب: m

$$y = (m-2)m^2 - 2(m+1)m + 10$$

④ (الف) $\rho < 0$, $\Delta > 0$

$$\Delta = (-2m-2)^2 - 4(m-2)(10) = 4[(m-2)^2 + 5] > 0 \leftarrow \text{مقادیر مثبت}$$

$$\rho < 0 \rightarrow \frac{10}{m-2} < 0 \rightarrow m-2 < 0 \rightarrow \boxed{m < 2} \rightarrow \boxed{\text{جواب} = m < 2}$$

$$\frac{-b}{2a} = \frac{-(m+1)}{2(m-2)} = \frac{m+1}{m-2} = -2 \rightarrow -m+2 = m+1 \rightarrow 2m = 1 \rightarrow \boxed{m = \frac{1}{2}} \quad \text{ب.}$$

$$y = \frac{2m^2}{3} - (2 \sin \alpha) m + 4 = 0 \quad \Delta > 0 \quad \text{⑤}$$

$$\frac{2m^2}{3} - (2 \sin \alpha) m + 4 = 0 \rightarrow \Delta = (-12 \sin \alpha)^2 - (4 \times 8 \times 3) = 144 \sin^2 \alpha - 96 > 0$$

$$\rightarrow \sin^2 \alpha > \frac{2}{3} \rightarrow \sin \alpha = 1 \rightarrow \sin^2 \alpha = 1 \rightarrow 2m^2 - 12m + 4 = 0 \rightarrow \boxed{\text{جواب} = \frac{3}{2}}$$

$$\text{و } \sin \alpha = -1 \rightarrow 2m^2 + 12m + 4 = 0 \rightarrow \boxed{\text{جواب} = \frac{3}{2}}$$

$$\frac{1}{m} + \frac{1}{m^2} = \frac{1}{2} \rightarrow \boxed{\frac{1}{m} = \frac{1}{2} \rightarrow m = 2}$$

$$y = \frac{(2m^2 - m - 1)(2m^2 - 4m - 8)}{1 - m^2} \rightarrow 1 - m^2 > 0 \rightarrow \boxed{m \neq \pm 1} \quad \text{⑥}$$

$$(2m^2 - m - 1) = (2m+1)(m-1) \text{ و } (2m^2 - 4m - 8) = (2m-8)(m+1) \rightarrow (2m+1)(2m-8)(m-1)(m+1)$$

$$1 - m^2 = -(m-1)(m+1) \rightarrow y = \frac{(2m+1)(2m-8)}{-(m-1)(m+1)} = -2m^2 + 14m + 8 \rightarrow \frac{-b}{2a} = \frac{-14}{-4} = \frac{7}{2}$$

$$\rightarrow y = -4\left(\frac{7}{2}\right)^2 + 14\left(\frac{7}{2}\right) + 8 = -4 \times \frac{49}{4} + \frac{49}{1} + 8 = \frac{-196 + 49 + 32}{1} = \frac{-115}{1} = -115$$

$$rS = \Delta p + V \quad y = m m^2 - (m+2)m - 2 = 0 \quad S = \frac{-b}{a}, \quad P = \frac{C}{a} \quad \text{⑦}$$

$$\frac{r(m+2)}{m} = \frac{\Delta + (-2)}{m} + Vm \rightarrow \frac{r}{m} + \frac{2r}{m} = \frac{\Delta}{m} - \frac{2}{m} + Vm \rightarrow \boxed{m = \frac{14}{3}} = \boxed{m = \frac{14}{3}}$$

$$\text{از این رو } \alpha^r + \beta^r = S^r - 2P = \left(\frac{(1+m+2)}{m}\right)^r - 2\left(\frac{-2}{m}\right) =$$

$$\frac{m^r + 2 + 2m}{m^r} + \frac{4}{m} = \frac{m^r + 2 + 2m + 4m}{m^r} = \frac{m^r + 4m + 2}{m^r} = \frac{m^r + 4m + 2}{m^r}$$

$$\rightarrow \frac{m^r + 4m + 2}{m^r} \xrightarrow{m=2} \frac{14 + 8 + 2}{14} = \frac{24}{14} = \frac{12}{7} \rightarrow \boxed{\frac{12}{7}}$$

$$y = x^2 - 2x + 2$$

$$\frac{\Sigma \alpha + \beta^{\omega}}{\alpha, \beta^2}$$

(1)

$$\beta^2 + \omega 2 + 2 = 0$$

$$\beta^2 = \omega \beta - 2 \rightarrow \beta^3 = \beta \times \beta^2 = \beta (\omega \beta - 2) = \omega \beta^2 - 2\beta = \omega (\omega \beta - 2) - 2\beta = \omega^2 \beta - 10$$

$$\beta^4 = \beta \times \beta^3 = \beta (\omega^2 \beta - 10) = \omega^2 \beta^2 - 10\beta \quad \beta^2 = \omega \beta - 2 \quad \beta^4 = 10\omega \beta - 24$$

$$\beta^5 = \beta \times \beta^4 = \beta (10\omega \beta - 24) = 10\omega \beta^2 - 24\beta \quad \beta^2 = \omega \beta - 2 \quad \beta^5 = 10\omega^2 \beta - 24\omega \beta - 48$$

$$S = \frac{-b}{a} \rightarrow \alpha + \beta = \omega \rightarrow \beta - \omega = \alpha \quad + = \frac{\Sigma \alpha + \beta^{\omega}}{\alpha, \beta^2} \leftarrow \text{میانگین}$$

$$\rightarrow \frac{\Sigma \alpha + (10\omega^2 \beta - 24\omega \beta - 48)}{\alpha, \beta^2} = \frac{\Sigma (\omega - \beta) + 10\omega^2 \beta - 24\omega \beta - 48}{\omega (\omega \beta - 2)} = \frac{\Sigma \omega \beta - 14\omega \beta - 48}{\omega (\omega \beta - 2)} = \frac{9\omega (\omega \beta - 2)}{\omega (\omega \beta - 2)}$$

$$\frac{9\omega (\omega \beta - 2)}{\omega (\omega \beta - 2)} = \frac{9\omega}{\omega} = 9 \quad \boxed{19} \rightarrow \text{میانگین}$$

$$y_1 = y_2 \rightarrow am^2 + bm + c = 2m + 1 \quad (9)$$

$$am^2 + bm + c = 2m + 1 \quad \begin{cases} m = +2 \\ m = -2 \end{cases} \rightarrow am^2 + (b-2)m - 1 = 0$$

$$p = \frac{c}{a} = 2 \times (-1) = -2 \Rightarrow \frac{-2}{a} = -2 \rightarrow a = +1$$

داده ها
میانگین

$$a = 1 \rightarrow b - 2 = 1 \rightarrow b = 3 \rightarrow y_{\text{معادله}} = x^2 + 3x + 2$$

$$\rightarrow \text{میانگین} \rightarrow \frac{-b}{2a} = \frac{-3}{2} = m \text{ میانگین}$$

$$y = 2m^2 + (m+1)m + m + 1 \rightarrow y = m \quad (10)$$

$$\rightarrow m = 2m^2 + (m+1)m + m + 1 \rightarrow 2m^2 + mm + m + 1 = 0$$

$$\text{Check } D = 0 \rightarrow m^2 - 1(m+1) = m^2 - 1m - 1 = 0 \Rightarrow (m-1)(m+1) = 0$$

$$\rightarrow \omega_{\text{میانگین}} = m = \frac{-m}{2} \rightarrow \begin{cases} m = 1 \\ m = -1 \end{cases} \rightarrow m = 1 \text{ و } m = -1 \rightarrow m = -1$$