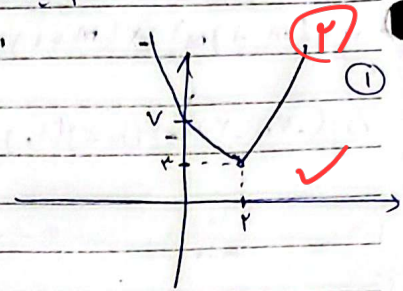
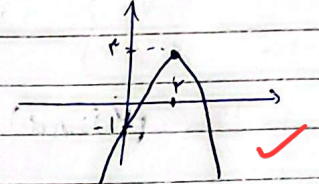


(الف) $y = x^2 - 4x + 4 \Rightarrow \frac{-b}{2a} = \frac{4}{2} = 2, \frac{-\Delta}{4a} = 1 \rightarrow A|2$



(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) (۱)

$(m-5)(m+3) > 0 \rightarrow m \in (-\infty, -3) \cup (5, +\infty)$ $m^2 - 2m - 7 = (m-5)(m+3)$ ✓

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

(ب) $\Delta = 0$

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

(ج) $\Delta < 0$

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

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

$\Delta < 0$ (۲) (۳)

(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 $P > 0$ (۱)

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

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

جواب: برای هر مقدار m برقرار است زیرا که هر دو شرط همزمان برقرار است ✓

$P < 0 \rightarrow \frac{1}{m-2} < 0 \rightarrow m-2 < 0 \rightarrow m < 2$ (۱)

$S < 0$ $P < 0$ (۲)

$S < 0 \rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow -1 < m < 2$ (۲)

نکته: $|x_1| = |x_2| \rightarrow S = 0$ $m = +2$ (در این صورت)
 $m = +2$ $\rightarrow$ در این صورت $|x_1| = |x_2|$ و $S = 0$ و $P < 0$
 $\rightarrow$ در این صورت $|x_1| = |x_2|$ و $S = 0$ و $P < 0$
 $\rightarrow$ در این صورت $|x_1| = |x_2|$ و $S = 0$ و $P < 0$

$\rightarrow m \in (-1, 2)$ ✓

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

⑧ (الف) $\rho < 0$, $\Delta > 0$

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

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

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

$$y = \frac{2m^2}{3} - (2 \sin \alpha)2 + \frac{4}{3} = 0 \rightarrow \frac{2m^2}{3} - (4 \sin \alpha)m + \frac{4}{3} = 0 \quad \Delta > 0 \quad \text{⑨ (الف)}$$

$$\frac{2m^2}{3} - (4 \sin \alpha)m + \frac{4}{3} = 0 \rightarrow \Delta = (-12 \sin \alpha)^2 - (4 \times 4 \times 4) = 144 \sin^2 \alpha - 64 > 0$$

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

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

$$\frac{2m^2}{3} - (4 \sin \alpha)m + \frac{4}{3} = 0 \rightarrow \boxed{\text{جواب} = \frac{3}{2}} \checkmark$$

$$y = \frac{(2m^2 - 4m - 1)(2m^2 - 4m - 5)}{1 - m^2} \rightarrow 1 - m^2 > 0 \rightarrow \boxed{m \neq \pm 1} \quad \text{⑩ (الف)}$$

$$(2m^2 - 4m - 1)(2m^2 - 4m - 5) = (2m - 1)(m - 1) \text{ و } (2m^2 - 4m - 5) = (2m - 5)(m + 1) \rightarrow (2m - 1)(2m - 5)(m - 1)(m + 1)$$

$$1 - m^2 = -(m - 1)(m + 1) \rightarrow y = \frac{(2m - 1)(2m - 5)}{-(m - 1)(m + 1)} = -\frac{2m^2 - 10m + 5}{m^2 - 1} = \frac{-2m^2 + 10m + 5}{m^2 - 1}$$

$$\rightarrow y = -2\left(\frac{1}{12}\right)^2 + 10\left(\frac{1}{12}\right) + 5 = -\frac{4}{144} + \frac{10}{12} + 5 = \frac{144 \times 5}{144} = \frac{720}{144} = 5 \quad \text{⑪ (الف)}$$

$$rS = \Delta p + V \quad y = m m^2 - (m+2)m - 2 = 0 \quad S = \frac{-b}{a} \text{ و } P = \frac{c}{a} \quad \text{⑫ (الف)}$$

$$\frac{r(m+2)}{m} = \frac{\Delta + (-2)}{m} + Vm \rightarrow \frac{r}{m} + \frac{2r}{m} = \frac{\Delta}{m} - \frac{2}{m} + Vm \rightarrow \boxed{m = \frac{14}{5}} = \boxed{m = \frac{14}{5}}$$

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

$$\frac{m^2 + 4 + 4m}{m^2} + \frac{4}{m} = \frac{m^2 + 4 + 4m + 4m}{m^2} = \frac{m^2 + 8m + 4}{m^2} = \frac{m^2 + 8m + 4}{m^2}$$

$$\rightarrow \frac{m^2 + 8m + 4}{m^2} \xrightarrow{m=5} \frac{14 + 40 + 4}{14} = \frac{58}{14} = \frac{29}{7} \rightarrow \boxed{\frac{29}{7}} \rightarrow \text{جواب} \checkmark$$

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

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

(2) (1)

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

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

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

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

$$S = \frac{-b}{a} \rightarrow \alpha + \beta = \Delta \rightarrow \beta - \Delta = \alpha \quad + = \frac{\Sigma \alpha + \beta \omega}{\Delta \beta^2}$$

$$\rightarrow \frac{\Sigma \alpha + (10\Delta \beta - 24\beta)}{\Delta \beta^2} = \frac{\Sigma (\Delta \beta - 2) + 10\Delta \beta - 24\beta}{\Delta (\Delta \beta - 2)} = \frac{\Sigma \Delta \beta - 2\Delta + 10\Delta \beta - 24\beta}{\Delta (\Delta \beta - 2)} = \frac{9\Delta (\Delta \beta - 2)}{\Delta (\Delta \beta - 2)}$$

$$\frac{9\Delta (\Delta \beta - 2)}{\Delta (\Delta \beta - 2)} = \frac{9\Delta}{\Delta} = 9 \rightarrow 19 \rightarrow \text{مبارک}$$

$$y_1 = y_2 \rightarrow am^2 + bm + c = 2m + 1$$

(2) (9)

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

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

داده ها

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

$$\rightarrow \text{نقطه } \rightarrow \frac{-b}{2a} = \frac{-3}{2} = m(0, \frac{3}{2})$$

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

(2) (10)

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

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

$$\rightarrow m = 2 \rightarrow m = -1 \rightarrow m = 2 \rightarrow m = -1 \rightarrow m = 2 \rightarrow m = -1 \rightarrow m = 2 \rightarrow m = -1$$