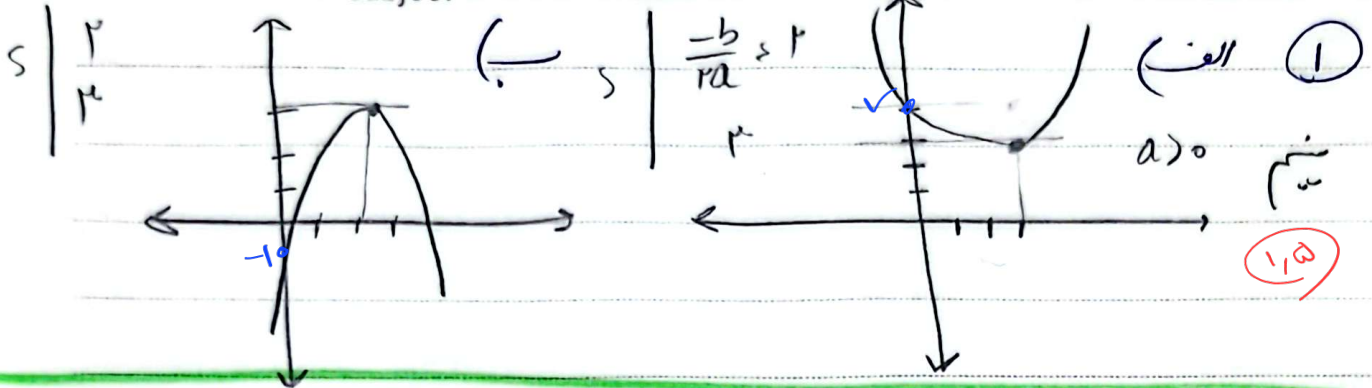


subject



(2) الف) $m^2 + (m+1)x + \frac{1}{m}m + 2 \leq 0$ $\Delta \geq 0$ $\frac{b^2 - 4ac}{4}$

$(m+1)^2 - 4(2)(\frac{1}{m}m + 2) \geq 0 \rightarrow m^2 - 2m - 15 \geq 0 \rightarrow (m-5)(m+3) \geq 0$

$\frac{-3}{+} \frac{5}{-}$ $\frac{5}{-} \frac{-3}{+}$ $\frac{2 \pm \sqrt{49}}{2}$

$\rightarrow (-\infty, -3) \cup (5, +\infty)$

(ب) الف) $m^2 - 2m - 15 \geq 0$ $\Delta \geq 0$ $\frac{b^2 - 4ac}{4}$

$m^2 - 2m - 15 \geq 0$ $\Delta \geq 0$ $\frac{b^2 - 4ac}{4}$

$m \in (-3, 5)$ (بین -3 و 5)

(د) اگر $m^2 - 2m - 15 \geq 0$ $\Delta \geq 0$ $\frac{b^2 - 4ac}{4}$

$m \in (-\infty, -3) \cup (5, +\infty)$

(3) الف) اگر $\frac{c}{a} < 0$ و $\Delta > 0$ و $\frac{-b}{a} < 0$

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

$\Delta > 0 \rightarrow (-2m-2)^2 - 4(10)(m+1) > 0$

$\rightarrow 4m^2 + 8m + 4 - 40m - 40 > 0$

$\rightarrow 4m^2 - 32m - 36 > 0$

$m^2 - 8m - 9 > 0$ $\Delta > 0$ $\frac{b^2 - 4ac}{4}$

$m \in (-1, 9)$

$\frac{-b}{a} < 0 \rightarrow \frac{2m+2}{m-2} < 0$ $\frac{-1}{+} \frac{2}{-}$ $m \in (-1, 2)$

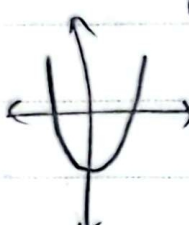
$\frac{c}{a} > 0 \rightarrow \frac{10}{m-2} > 0$ $\frac{1}{-} \frac{10}{+}$ $m \in (2, +\infty)$

subject

$$\frac{c}{a} > 0 \rightarrow \frac{2}{-f+} \rightarrow m \in (-\infty, 2) \quad \left. \begin{array}{l} \frac{-b}{a} < 0 \rightarrow \frac{-1}{+f-} \rightarrow m \in (-1, 2) \end{array} \right\} \begin{array}{l} \text{تکرار ۱، ۲} \\ m \in (-1, 2) \end{array}$$

۴) ریشه‌های مختلف علامت $\Delta > 0$ و $P < 0$ (الف)

مع $\Delta > 0$ - a, s - مشخص است: $P < 0$



$$\frac{c}{a} < 0 \rightarrow \frac{2}{-f+} + \frac{10}{m-2} < 0 \quad m \in (-\infty, 2) \quad m < 2$$

(ب)

$$\frac{-b}{2a} \leq -2 \rightarrow \frac{2m+2}{2m-2} \leq -2 \rightarrow -2m+4 \leq 2m+2 \rightarrow 4m \leq 4 \rightarrow m \leq 1$$

۵) $\Delta > 0$

$$\frac{2x^2}{3} - (r \sin \alpha)x + \frac{r}{3} \leq 0 \rightarrow r \sin^2 \alpha - 2 \geq 0 \rightarrow r \sin^2 \alpha \geq 2 \rightarrow \sin^2 \alpha \geq \frac{2}{r}$$

۱) $\sin \alpha \leq -1 \rightarrow \frac{2x^2}{3} + 2x + \frac{r}{3} \leq 0 \rightarrow 2 - 2(\frac{r}{3})(\frac{r}{3}) \leq 0 \rightarrow 2r \leq -\frac{r}{3}$

۲) $\sin \alpha \leq 1 \rightarrow \frac{2x^2}{3} - 2x + \frac{r}{3} \leq 0 \rightarrow 2(\frac{r}{3})(\frac{r}{3}) \leq 0 \rightarrow \frac{r}{3} \leq 0$

۶) $\frac{2x^2 - 2x - 1}{(1-x)(1+x)} \leq -1$, $x \leq 1$, $x \leq \frac{-c}{a} \leq -\frac{1}{2}$

$\frac{2x^2 - 2x - 1}{(1-x)(1+x)} \leq -1$, $x \leq -1$, $x \leq \frac{a}{r}$

$y \leq \frac{(x-1)(x+\frac{1}{2})(x+1)(x-\frac{a}{r})}{(1-x)(1+x)} \leq - \left(x+\frac{1}{2}\right)\left(x-\frac{a}{r}\right) \rightarrow$

$x \neq \pm 1$

subject

$$y = -x^r + \frac{14}{5}x + \frac{w}{5} \quad \Delta = \left(\frac{14}{5}\right)^r - \Sigma(-1)\left(\frac{w}{5}\right) = \frac{-149 - 110}{125} = \frac{-259}{125}$$

$$\frac{-259}{125} = \frac{149}{125} \quad \text{sg} \leftarrow$$

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

$$mx^r - (m+r)x - r = 0 \quad s = \frac{m+r}{m}$$

$$p = \frac{-r}{m} \quad \left\{ \begin{array}{l} \mu\left(\frac{m+r}{m}\right) \omega\left(\frac{-r}{m}\right) + v \end{array} \right. \quad \checkmark$$

$$\frac{r(m+r)}{m} = \frac{-10 + vm}{m} \rightarrow r(m+r) = -10 + vm \rightarrow m \leq 1$$

$$m \neq 0 \quad \leftarrow$$

$$\frac{c}{a} s = \frac{-1}{r} \quad \left\{ \begin{array}{l} \frac{r}{r} s = \frac{-b}{a} \end{array} \right. \quad \leftarrow \quad \checkmark$$

$$(\alpha + \beta)^r = s^r - rp \rightarrow \left(\frac{r}{r}\right)^r - r\left(\frac{-1}{r}\right) = \frac{14}{5}$$

$$x^r - \omega x + r = 0 \rightarrow \frac{-b}{a} = \alpha \rightarrow \alpha + \beta = a \quad \alpha = \omega - \beta \quad \text{B1}$$

$$\beta^r - \omega \beta + r = 0 \rightarrow \beta^r = \omega \beta - r \rightarrow \beta^2 = (-r + \omega \beta)^r =$$

$$r \omega \beta^r - r \omega \beta + \Sigma \beta^r (\omega \beta - r) \quad r \omega (\omega \beta - r) - r \omega \beta + \Sigma = 0$$

$$1 r \omega \beta - \omega \omega - r \omega \beta + \Sigma = 0$$

$$L \quad \beta^2 = 10 \omega \beta - \Sigma \quad \times \beta$$

$$\beta^3 = 10 \omega \beta^2 \rightarrow \beta^3 = 10 \omega (\omega \beta - r) - \Sigma \beta \rightarrow \quad \checkmark$$

$$\beta^3 = \Sigma \omega \beta - r \omega \quad \frac{r \alpha + \beta \omega}{\omega \beta^r} \quad \frac{\Sigma (\omega - \beta) + \Sigma \omega \beta - r \omega}{\omega (\omega \beta - r)}$$

$$19 \leq \frac{19(r \omega \beta - r \omega)}{r \omega \beta - r \omega} \leq \frac{r \omega \beta - 19 \omega}{r \omega \beta - 10}$$

subject

(9)

$$\left. \begin{array}{l} ax^2 + bx + c \\ x + 10 \end{array} \right\} \begin{array}{l} -(9a - 4b + c_5 \varepsilon) \\ 9a + 4b + c_5 \varepsilon \end{array} \quad \begin{array}{l} -9a + 4b \leq 10 \\ 9a - 4b \leq 0 \end{array}$$

$b \leq 9a$

$$\frac{85-b}{9a} = \frac{-v/10}{r(r/10)} = \frac{-r}{r}$$

$$r/10 x^2 + v/10 x + \varepsilon = 0$$

$$r/10 \leq 10 \rightarrow a \leq r/10$$

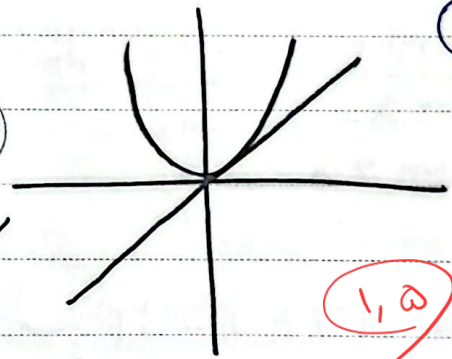
$$b \leq v/10$$

$$\rightarrow r/10 \rightarrow rx^2 + mx + m + 450$$

$$0 \leq \Delta \rightarrow m^2 - 4m - \varepsilon \Delta \quad \left. \begin{array}{l} 12 \\ -\varepsilon \end{array} \right\} m$$

$$1) m \geq 12 \rightarrow rx^2 + 12x + 1250 \quad \checkmark$$

$$1) m \leq -\varepsilon \rightarrow rx^2 - \varepsilon m + r50 \quad \checkmark$$



(10)

(1, 2)