

$$q_1^2 - 11q_1 + 28 = (q_1 - 4)(q_1 - 7) \Rightarrow \left. \begin{matrix} q_1 = 7 \\ q_1 = 4 \end{matrix} \right\}$$

(الف)

$$q_1^2 + 3q_1 - 28 = (q_1 + 7)(q_1 - 4) = 0 \Rightarrow \left. \begin{matrix} q_1 = -7 \\ q_1 = 4 \end{matrix} \right\}$$

(ب)

$$6q_1^2 - 12q_1 + 7 = 0 \Rightarrow q_1^2 - 2q_1 + \frac{7}{6} = (q_1 - 1)(q_1 - \frac{1}{6}) = 0 \Rightarrow \left. \begin{matrix} q_1 = 1 \\ q_1 = \frac{1}{6} \end{matrix} \right\}$$

(الف)

$$3q_1^2 - 10q_1 + 7 = q_1^2 - 10q_1 + 21 = 0 \Rightarrow (q_1 - 3)(q_1 - 7) = 0 \Rightarrow \left. \begin{matrix} q_1 = \frac{3}{3} = 1 \\ q_1 = \frac{7}{3} \end{matrix} \right\}$$

(ب)

$$aq_1^2 + bq_1 + c \Rightarrow 2q_1^2 - 6q_1 + 3 = 0 \Rightarrow a+b+c=0 \Rightarrow q_1 = 1, q_1 = \frac{c}{a} = \frac{3}{2}$$

(الف)

$$2q_1^2 + 6q_1 + 3 = 0 \Rightarrow a+c=b \Rightarrow q_1 = -1, q_1 = -\frac{c}{a} = -\frac{3}{2}$$

(ب)

$$2q_1^2 - 6q_1 + 1 = 0 \Rightarrow \Delta = b^2 - 4ac \Rightarrow 6 = 26 - 12 = 14 \Rightarrow q_1 = \frac{6 \pm \sqrt{14}}{2}$$

(ج)

$$4q_1^2 + 7q_1 + 4 = 0 \Rightarrow \Delta = 49 - 64 = -15 < 0 \Rightarrow \text{معادله جبرایی در مجموعه اعداد حقیقی ندارد.}$$

$$\text{محل صفر ریشه ها} = p = \frac{c}{a} = -2 \quad \text{محل صفر ریشه ها} = \frac{-b}{a} = 3$$

$$S^2 - 2p = (3)^2 - 2(-2) = 9 + 4 = 13$$

(الف)

$$S^3 - 3SP = (3)^3 - 3(3)(-2) = 27 + 18 = 45$$

(ب)

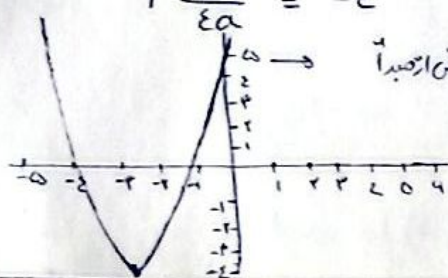
$$\begin{pmatrix} 1 \\ 6 \end{pmatrix} + \begin{pmatrix} 4 \\ 2 \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 4 \\ 2 \end{pmatrix} = \frac{1 \times 4}{2} + \frac{4 \times 2}{2} = 2 + 4 = 6$$

(الف)

$$\begin{pmatrix} 4 \\ 3 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{4 \times 2 \times 1}{3 \times 2 \times 1} - \frac{1 \times 2 \times 1}{1} = 1 - 2 = -1$$

(ب)

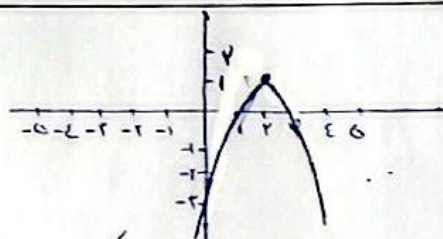
$a > 0 \rightarrow \min U$ $\min = \begin{cases} \frac{-b}{2a} = -3 \\ \frac{-c}{\epsilon a} = -\epsilon \end{cases}$ (الف)



دکله دیکر محمدی کا قطع من پند ۱ عددن اړخید

(ب)

$a < 0 \rightarrow \max \Pi$ $\max = \begin{cases} \frac{-b}{2a} = 2 \\ \frac{-c}{\epsilon a} = 1 \end{cases}$ (الف)



(ب) وختن من دیکر محمدی کا اړخید ناقص قطع من کنه پند باید بشه کا اړخید یادیریم:

$y = -a^2 + \epsilon a - 2 \Rightarrow a + b + c = 0 \Rightarrow a = 1$, $a = \frac{c}{a} = 3$

(الف) بین $\Delta > 0 \Leftrightarrow \Delta = b^2 - \epsilon ac \Rightarrow \Delta = 4 - 1a > 0 \rightarrow a < 4 \Rightarrow a_{1/2} > a$

(ب) بین $\Delta = 0 \Leftrightarrow \Delta = 4 - 1a = 0 \Rightarrow a = 4 \Rightarrow a = a_{1/2}$

(ج) بین $\Delta < 0 \Leftrightarrow \Delta = 4 - 1a < 0 \Rightarrow a > 4 \Rightarrow a_{1/2} < a$

(د) بین $\Delta > 0 \Leftrightarrow \Delta = 4 - 1a > 0 \rightarrow a < 4 \Rightarrow a_{1/2} > a$

(الف) $a^2 - 2a - 1 + 2 = 2 \Rightarrow a^2 - 2a + 1 = 2 \Rightarrow (a-1)^2 = 2 \Rightarrow a-1 = \pm\sqrt{2} \Rightarrow a = 1 \pm \sqrt{2}$

(ب) $a^2 + a - 1 \Rightarrow a^2 - a - 1 + \frac{1}{\epsilon} = \frac{1}{\epsilon} \Rightarrow (a - \frac{1}{\epsilon})^2 - 1 = \frac{1}{\epsilon} \Rightarrow (a - \frac{1}{\epsilon})^2 = \frac{1}{\epsilon} + 1$

$a - \frac{1}{\epsilon} = \pm \sqrt{\frac{1}{\epsilon} + 1} \Rightarrow a = \frac{1}{\epsilon} \pm \sqrt{\frac{1}{\epsilon} + 1} = \frac{1 \pm \sqrt{1 + \epsilon}}{\epsilon}$

(الف) $a^2 - 2a - 1 \Rightarrow \Delta = b^2 - \epsilon ac = 4 + \epsilon = 4 \Rightarrow a = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow a = \frac{2 \pm \sqrt{4}}{2} \Rightarrow a_1 = 1 + \sqrt{2}, a_2 = 1 - \sqrt{2}$

(ب) $a^2 + a - \epsilon = 0 \Rightarrow \Delta = b^2 - \epsilon ac = 1 + 14 = 15 \Rightarrow a = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow a = \frac{-1 \pm \sqrt{15}}{2}$