

نام و نام خانوادگی امیرعلی پاسخنامه تشریحی تکلیف شماره کلاس اسمان A

الف) $y = x^2 + 9x + 5 \rightarrow \min$

$$x = \frac{-b}{2a} = \frac{-9}{2} = -4.5$$

$$y(x) = y(-4.5) = -4$$

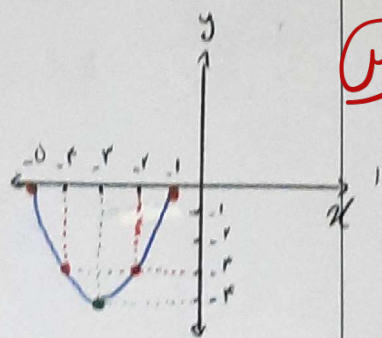
$(x, y) = (-4.5, -4)$

نوع = Min (نزاشیب است)

ب)

x	1	2	3	4	5
y	0	-2	-4	-3	0

راه حل = اعداد قبل و بعد از عرض y را نوشته و در معادله جاگذاری کنیم تا طول های آن ها بدست بیاید.



الف) $\Delta = 19 - 12 = 7$

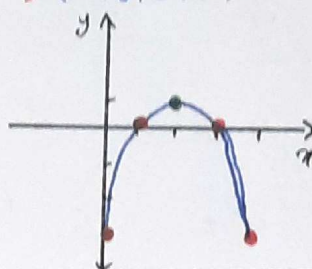
$$y = -x^2 + 4x - 3 \rightarrow \max$$

$$x = \frac{-b}{2a} = \frac{-4}{-2} = 2$$

$$y = \frac{\Delta}{4a} = \frac{-7}{-4} = 1.75$$

$(x, y) = (2, 1.75)$

x	0	1	2	3	4
y	-3	0	1	0	-3



ب) برای بدست آوردن طول از مبدأ باید x را در نظر بگیریم.

$$-x^2 + 4x - 3 = 0 \rightarrow -x^2 + 4x = 3$$

$$x(x+4) = 3 \rightarrow x < 1$$

الف) $\Delta > 0 \rightarrow \Delta = b^2 - 4ac = 9 - 12a \rightarrow a < \frac{9}{4}$

ب) $\Delta = 0 \rightarrow \Delta = b^2 - 4ac = 9 - 12a \rightarrow a = \frac{9}{4}$

ج) $\Delta < 0 \rightarrow \Delta = b^2 - 4ac = 9 - 12a \rightarrow a > \frac{9}{4}$

د) $\Delta \geq 0 \rightarrow \Delta = b^2 - 4ac = 9 - 12a \rightarrow a \leq \frac{9}{4}$

$2x^2 - 3x + a = 0$

الف)

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

$$\rightarrow (x-1)^2 - 2 = 0 \rightarrow (x-1)^2 = 2 \rightarrow x-1 = \pm\sqrt{2}$$

$$\rightarrow x = 1 \pm \sqrt{2} \rightarrow x < 1 + \sqrt{2}$$

ب)

$$x^2 - x - 1 = 0 \rightarrow x^2 - x - 1 = (x^2 - x + \frac{1}{4}) - \frac{1}{4} - 1$$

$$\rightarrow (x - \frac{1}{2})^2 - \frac{5}{4} = 0 \rightarrow (x - \frac{1}{2})^2 = \frac{5}{4}$$

$$\rightarrow x - \frac{1}{2} = \pm\sqrt{\frac{5}{4}} = \pm\frac{\sqrt{5}}{2} \rightarrow x < \frac{1}{2} + \frac{\sqrt{5}}{2}$$

الف)

$$x^2 - 2x - 1 = 0 \rightarrow \Delta = b^2 - 4ac = 4 - (-4) = 8$$

$$\Delta > 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow x = \frac{2 \pm \sqrt{8}}{2}$$

$$\rightarrow x = \frac{2 \pm 2\sqrt{2}}{2} \rightarrow x = 1 \pm \sqrt{2} \rightarrow x < 1 + \sqrt{2}$$

ب)

$$x^2 + x - 4 = 0 \rightarrow \Delta = b^2 - 4ac = 1 - (-16) = 17$$

$$\Delta > 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow x = \frac{-1 \pm \sqrt{17}}{2}$$

$$\rightarrow x < \frac{-1 + \sqrt{17}}{2}$$

الف) $x^2 - 11x + 21 = 0 \rightarrow C = -Fx - V, b = F + (-V)$
 $\rightarrow (x-4)(x-7) \Rightarrow x < \frac{V}{F}$

ب) $x^2 + 3x - 21 = 0 \rightarrow b = V + (-F)$
 $C = Vx(-F)$
 $\rightarrow (x+V)(x-F) = 0$
 $\rightarrow x < \frac{-V}{F}$

الف) $\Delta x^2 - 12x + V = 0 \rightarrow x^2 - 12x + 30 = 0$
 $\rightarrow b = -V + (-5), C = -Vx - 5$
 $\rightarrow (x-V)(x-5) \rightarrow x < \frac{V}{5} = 1$

ب) $3x^2 - 10x + V = 0 \rightarrow x^2 - 10x + 21 = 0$
 $\rightarrow b = -3 + (-V), C = -3x - V$
 $\rightarrow (x-3)(x-V) \rightarrow x < \frac{3}{V} = 1$

الف) $2x^2 - 5x + 3 = 0 \rightarrow x^2 - 5x + 9 = 0 \rightarrow (x-2)(x-3) \Rightarrow x < \frac{2}{3} = \frac{V}{F}$
 ب) $2x^2 + 5x + 3 = 0 \rightarrow x^2 + 5x + 9 = 0 \rightarrow (x+2)(x+3) \Rightarrow x < \frac{-2}{3} = -\frac{V}{F}$
 ج) $2x^2 - 5x + 1 = 0 \rightarrow \Delta = 25 - 4 = 17 \rightarrow x = \frac{b \pm \sqrt{\Delta}}{2a} \rightarrow x < \frac{0 - \sqrt{17}}{0 + \sqrt{17}}$
 $\Delta = b^2 - 4ac \rightarrow 25 - 20 = 5 \rightarrow 5 - 14 = -9 \rightarrow \Delta < 0$
 د) $4x^2 + 7x + 9 = 0 \rightarrow \Delta = 49 - 144 = -95 \rightarrow \Delta < 0$

$x^2 - 3x - 2 = 0$
 $\text{مجموع} = S = -\frac{b}{a}$
 $P = \frac{C}{a}$

الف) $S = -\frac{b}{a} = \frac{3}{1} = 3$
 $P = \frac{C}{a} = \frac{-2}{1} = -2$
 ب) $S = 3P = 9 - (-4) = 13$
 ج) $S = 3PS = 27 + 11 = 38$

الف) $\begin{pmatrix} V \\ 0 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{(V \times 9 + 0 \times 2) \times (V \times 2 + 0 \times 9)}{(V \times 2 + 0 \times 9) \times (V \times 9 + 0 \times 2)} = \frac{(9 \times V + 0 \times 2) \times (2 \times V + 0 \times 9)}{2! \times V!} = \frac{(9 \times V + 0 \times 2) \times (2 \times V + 0 \times 9)}{2! \times V!} = \frac{18V - 21 = 09}{2! \times V!}$
 $(3 \times V) + (9 \times 2) = 0V$
 ب) $\begin{pmatrix} 9 \\ 3 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{9 \times 1 \times V \times 9 \times 0 \times 2 \times 3 \times 2 \times 1}{3! \times 2!} - \frac{1 \times V \times 9 \times 0 \times 2 \times 3 \times 2 \times 1}{2! \times 3!} = 18 - 21 = 09$