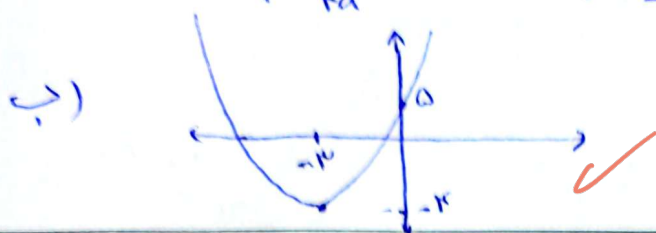


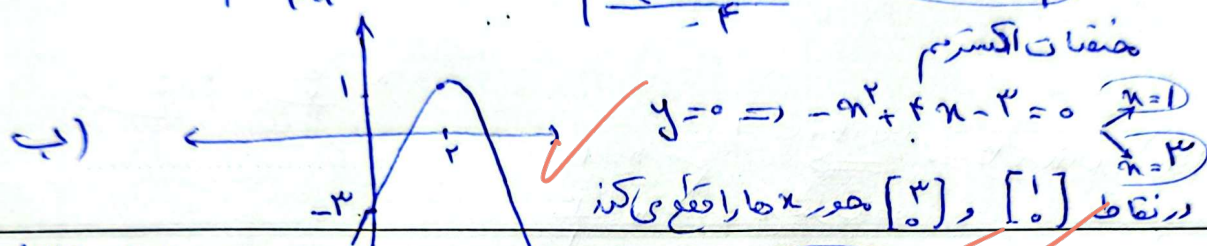
الف)  $\text{ext} \left| \begin{array}{l} -\frac{b}{2a} \\ -\frac{\Delta}{4a} \end{array} \right| \Rightarrow \min \left| \begin{array}{l} -\frac{4}{2} \\ -\frac{(36-20)}{4} \end{array} \right| \Rightarrow \min \left| \begin{array}{l} -2 \\ -4 \end{array} \right|$

نوع سهمی: یکنیم، داراست



الف)  $\text{ext} \left| \begin{array}{l} -\frac{b}{2a} \\ -\frac{\Delta}{4a} \end{array} \right| \Rightarrow \max \left| \begin{array}{l} -\frac{4}{-2} \\ -\frac{(16-12)}{-4} \end{array} \right| \Rightarrow \max \left| \begin{array}{l} 2 \\ 1 \end{array} \right|$

مضامین اکسیرم



الف)  $\Delta > 0 \Rightarrow 9 - 4a > 0 \Rightarrow 4a < 9 \Rightarrow a < \frac{9}{4}$

ب)  $\Delta = 0 \Rightarrow 9 - 4a = 0 \Rightarrow 4a = 9 \Rightarrow a = \frac{9}{4}$

ج)  $\Delta < 0 \Rightarrow 9 - 4a < 0 \Rightarrow 4a > 9 \Rightarrow a > \frac{9}{4}$

د)  $\Delta \geq 0 \Rightarrow 9 - 4a \geq 0 \Rightarrow 4a \leq 9 \Rightarrow a \leq \frac{9}{4}$

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

ب)  $x^2 - x - 1 = 0 \Rightarrow (x - \frac{1}{2})^2 - \frac{5}{4} = 0 \Rightarrow (x - \frac{1}{2})^2 = \frac{5}{4} \Rightarrow x - \frac{1}{2} = \pm\frac{\sqrt{5}}{2} \Rightarrow x = \frac{1 \pm \sqrt{5}}{2}$

الف)  $x^2 - 2x - 1 = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{2 \pm \sqrt{4 - 4 \times 1 \times (-1)}}{2} = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$

ب)  $x^2 + x - 2 = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-1 \pm \sqrt{1 - 4 \times 1 \times (-2)}}{2} = \frac{-1 \pm \sqrt{9}}{2} = \frac{-1 \pm 3}{2}$



الف)  $x^2 - 11x + 18 = 0 \Rightarrow (x-2)(x-9) = 0 \Rightarrow \begin{cases} x=2 \\ x=9 \end{cases}$

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ب)  $x^2 + 3x - 18 = 0 \Rightarrow (x+6)(x-3) = 0 \Rightarrow \begin{cases} x=-6 \\ x=3 \end{cases}$

الف)  $\omega x^2 - 12x + 1 = 0 \Rightarrow x^2 - 12x + 3\omega = 0 \Rightarrow (x-\omega)(x-3) = 0 \Rightarrow \begin{cases} x=\omega=1 \\ x=3 \end{cases}$

ب)  $3x^2 - 10x + 1 = 0 \Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0 \Rightarrow \begin{cases} x=3 \\ x=7 \end{cases}$

الف)  $2x^2 - \omega x + 3 = 0 \Rightarrow \begin{cases} x=1 \\ x=\frac{3}{2} \end{cases}$

ب)  $2x^2 + \omega x + 3 = 0 \Rightarrow \begin{cases} x=1 \\ x=-\frac{3}{2} \end{cases}$

ج)  $2x^2 - \omega x + 1 = 0 \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{\omega \pm \sqrt{\omega^2 - 4}}{4} = \frac{\omega \pm \sqrt{16}}{4}$

د)  $4x^2 + 12x + 9 = 0 \Rightarrow \Delta = b^2 - 4ac = 144 - 144 = 0 \Rightarrow x = -\frac{3}{2}$

$S = \frac{-b + \sqrt{\Delta}}{2a} + \frac{-b - \sqrt{\Delta}}{2a} = -\frac{b}{a} = -\frac{1}{1} = -1$   $P = \frac{-b + \sqrt{\Delta}}{2a} \times \frac{-b - \sqrt{\Delta}}{2a} = \frac{b^2 - \Delta}{4a^2} = \frac{1 - 0}{4} = \frac{1}{4}$

الف)  $S^2 - 2P = \frac{1}{4} - 2 \times \frac{1}{4} = \frac{1}{4} - \frac{1}{2} = -\frac{1}{4}$

ب)  $S^2 - 3Sp = S(S - 3P) = \frac{1}{4} \left( \frac{1}{4} - 3 \times \left(-\frac{1}{4}\right) \right) = \frac{1}{4} \times \frac{10}{4} = \frac{5}{8}$

الف)  $\binom{9}{5} + \binom{9}{4} = \frac{9!}{5!4!} + \frac{9!}{4!5!} = \frac{9 \times 8 \times 7 \times 6}{1 \times 2 \times 3 \times 4} + \frac{9 \times 8 \times 7 \times 6}{1 \times 2 \times 3 \times 4} = 126 + 126 = 252$

ب)  $\binom{9}{3} - \binom{9}{2} = \frac{9!}{3!6!} - \frac{9!}{2!7!} = \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9} - \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9} = 84 - 36 = 48$

$14 - 18 = -4$