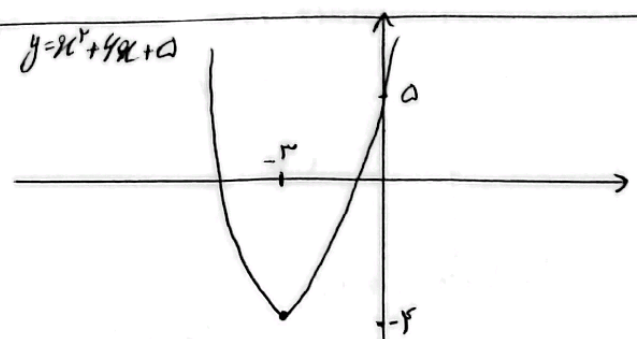
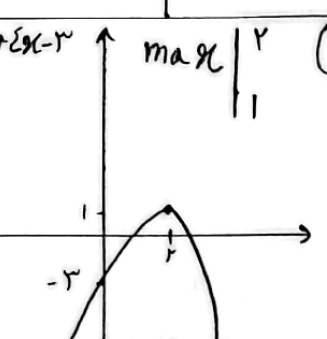


الف) $\min \begin{vmatrix} -3 \\ -4 \end{vmatrix}$ $y = x^2 + 4x + 5$ $y = x^2 + 4x + 5$	ب) 	1
الف) $y = -x^2 + 2x - 3$ 	ب) $y = 0 \Rightarrow -x^2 + 2x - 3 = 0$ $a + b + c = 0 \Rightarrow \begin{cases} x = 3 \\ x = 1 \end{cases}$ فقط: $\begin{cases} 1 \\ 1 \end{cases}$	2
الف) $2x^2 - 2x + 1 = 0$ $a + b + c = 0 \Rightarrow \begin{cases} x = \frac{1}{2} \\ x = 1 \end{cases}$ $a = 1$	ب) $\Delta = b^2 - 4ac$ $\Delta = 1 - 4 \cdot 2 \cdot 1 = -7$ $\Delta < 0$ $9 - 12a < 0$ $12a > 9$ $a > \frac{3}{4}$ $a = 1$	3
الف) $x^2 - 2x - 1 = 0$ $x^2 - 2x + 1 - 2 = 0 \Rightarrow (x - 1)^2 = 2 \Rightarrow x - 1 = \pm \sqrt{2}$ $\Rightarrow \begin{cases} x = 1 + \sqrt{2} \\ x = 1 - \sqrt{2} \end{cases}$	ب) $x^2 - x - 1 = 0$ $x^2 - x + \frac{1}{2} - \frac{3}{2} = 0$ $(x - \frac{1}{2})^2 = \frac{5}{4} \Rightarrow x - \frac{1}{2} = \pm \frac{\sqrt{5}}{2}$ $\begin{cases} x = \frac{1 + \sqrt{5}}{2} \\ x = \frac{1 - \sqrt{5}}{2} \end{cases}$	4
الف) $x^2 - 2x - 1 = 0$ $\Delta = b^2 - 4ac = 4 + 4 = 8$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{8}}{2} = 1 \pm \sqrt{2}$ $\Rightarrow \begin{cases} x = \frac{2 + \sqrt{8}}{2} = 1 + \sqrt{2} \\ x = \frac{2 - \sqrt{8}}{2} = 1 - \sqrt{2} \end{cases}$	ب) $x^2 + 8x - 4 = 0$ $\Delta = b^2 - 4ac = 64 + 16 = 80$ $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-8 \pm \sqrt{80}}{2} = -4 \pm \sqrt{20}$ $\Rightarrow \begin{cases} x = \frac{-8 + \sqrt{80}}{2} = -4 + \sqrt{20} \\ x = \frac{-8 - \sqrt{80}}{2} = -4 - \sqrt{20} \end{cases}$	5

الف) $x^2 - 11x + 28 = 0$ $(x-7)(x-4) = 0$ $\begin{cases} x=7 \\ x=4 \end{cases}$	ب) $x^2 + 2x - 18 = 0$ $(x-2)(x+7) = 0$ $\begin{cases} x=-7 \\ x=2 \end{cases}$	٦	
الف) $\Delta x^2 - 12x + 7 = 0$ $x^2 - 12x + 36 = 0 \Rightarrow (x-6)(x-6) = 0$ $\begin{cases} x = \frac{7}{\Delta} \\ x = \frac{6}{\Delta} = 1 \end{cases}$	ب) $3x^2 - 10x + 7 = 0$ $x^2 - 10x + 21 = 0 \Rightarrow (x-7)(x-3) = 0$ $\begin{cases} x = \frac{7}{3} = 1 \\ x = \frac{7}{3} \end{cases}$	٧	
الف) $2x^2 - 2x + 3 = 0$ $a+b+c=0 \Rightarrow \begin{cases} x = \frac{3}{2} \\ x = 1 \end{cases}$	ب) $x^2 + 4x + 3 = 0$ $a+c=b$ $\Rightarrow \begin{cases} x = -\frac{3}{2} \\ x = -1 \end{cases}$	ج) $2x^2 - 2x + 1 = 0$ $\Delta = b^2 - 4ac = 17$ $x = \frac{-b \pm \sqrt{\Delta}}{2a}$ $x = \frac{2 \pm \sqrt{17}}{4} \Rightarrow \begin{cases} x = \frac{2 - \sqrt{17}}{4} \\ x = \frac{2 + \sqrt{17}}{4} \end{cases}$	
د) $4x^2 + 7x + 9 = 0$ $\Delta = b^2 - 4ac = 49 - 144 = -95$ چون دلتا منفي است پس جواب ندارد	٨		
$x^2 - 3x - 2 = 0$ الف) $S^2 - 2P = 3^2 - (-2) = 13$ $S = -\frac{b}{a} = 3$ $P = \frac{c}{a} = -2$ ب) $S^3 - 3SP = 3^3 - 3(3)(-2) = 27 + 18 = 45$			٩
الف) $\binom{7}{0} + \binom{9}{2} = \frac{7!}{0! \times 7!} + \frac{9!}{2! \times 7!} = \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{1 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} + \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} = 1 + 36 = 37$ ب) $\binom{9}{3} - \binom{7}{2} = \frac{9!}{3! \times 6!} - \frac{7!}{2! \times 5!} = \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{6 \times 5 \times 4 \times 3 \times 2 \times 1} - \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1 \times 5 \times 4 \times 3 \times 2 \times 1} = 84 - 21 = 63$			١٠