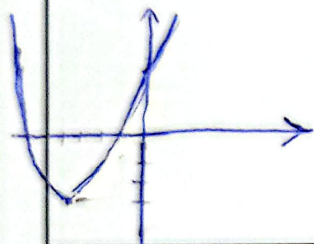


الف) $x^2 - 6x + 8 = 0 \Rightarrow x^2 - 6x + 9 = 1 \Rightarrow (x-3)^2 = 1 \Rightarrow (x-3) = \pm 1$ $\Rightarrow x = \begin{cases} 2 \\ 4 \end{cases}$ ب) $x^2 + 8x + 7 = 0 \Rightarrow x^2 + 8x + 16 = 9 \Rightarrow (x+4)^2 = 9 \Rightarrow x+4 = \pm 3$ $\Rightarrow x = \begin{cases} -1 \\ -7 \end{cases}$	1
الف) $x^2 - 5x + 6 = 0 \Rightarrow (x-2)(x-3) = 0 \Rightarrow x = \begin{cases} 2 \\ 3 \end{cases}$ ب) $x^2 - 5x - 14 = 0 \Rightarrow (x-7)(x+2) = 0 \Rightarrow \begin{cases} x=7 \\ x=-2 \end{cases}$	2
الف) $x^2 - 9x - 5 = 0 \Rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \quad \Delta = 9 - 2(1)(-5) = 29 \Rightarrow x_{1,2} = \frac{+9 \pm \sqrt{29}}{2}$ ب) $2x^2 - 5x + 1/2 = 0 \Rightarrow x = \frac{\Delta \pm \sqrt{12}}{2} \quad \Delta = 17 - 2(2)(1/4) = 17$	3
الف) $x^2 - 9x + 2 = 0 \Rightarrow a+b+c=0 \Rightarrow x = \begin{cases} 1 \\ 2/1 - 2 \end{cases}$ ب) $2x^2 + x - 3 = 0 \Rightarrow a+c=b \Rightarrow x = \begin{cases} -1 \\ 3/2 \end{cases}$	4
الف) $5x^2 - 12x + 7 = 0 \xrightarrow{\text{تقسیم بر 5}} \begin{cases} x = 7/5 \\ x = 2/5 = 1 \end{cases}$ $x^2 - 12x + 9 = 0 \Rightarrow (x-7)(x-5) = 0 \Rightarrow x = \begin{cases} 7 \\ 5 \end{cases}$ ب) $3x^2 - 10x + 7 = 0 \Rightarrow x = \begin{cases} 5/3 \\ 7/3 \end{cases}$ $x^2 - 10x + 21 = 0 \Rightarrow (x-7)(x-3) = 0 \Rightarrow x = \begin{cases} 7 \\ 3 \end{cases}$	5

الف) $-3x^2 + 5x - 1 = 0 \Rightarrow \Delta = 25 - 4(-3)(-1) = 13 > 0$ دو ریشه حقیقی
 ب) $2x^2 - x + 2 = 0 \Rightarrow \Delta = 1 - 4(2)(2) = -15 < 0$ فاصله ریشه حقیقی
 ج) $2x^2 - 8x + 2 = 0 \Rightarrow \Delta = 64 - 4(2)(2) = 56 > 0$ دو ریشه حقیقی
 د) $2x^2 - x + 1 = 0 \Rightarrow \Delta = 1 - 4(2)(1) = -7 < 0$ فاصله ریشه حقیقی

الف) $2x^2 - 2x + a = 0$ $9 - 4a > 0$ $\Delta = b^2 - 4ac = 4 - 4(2)(a) = 4 - 8a > 0$
 $9 > 4a \Rightarrow 9/4 > a$
 ب) $\Delta = 0 \Rightarrow 9 - 4a = 0 \Rightarrow 9 = 4a \Rightarrow a = 9/4$
 ج) $\Delta < 0 \Rightarrow 9 - 4a < 0 \Rightarrow 9 < 4a \Rightarrow 9/4 < a$
 د) اجتماع جواب های الف و ب

$y = x^2 + 7x + 5 \xrightarrow{a>0} \min \left| \begin{array}{l} -\frac{b}{2a} = -\frac{7}{2} \\ -\frac{\Delta}{4a} = -\frac{9}{4} \end{array} \right|$



الف) $y = -x^2 + 5x - 2$ $\max \left| \begin{array}{l} -\frac{b}{2a} = \frac{5}{2} \\ 1 \end{array} \right|$
 ب) $0 = -x^2 + 5x - 2 \Rightarrow x^2 - 5x + 2 = 0$
 $\Rightarrow x = \frac{5 \pm \sqrt{25 - 8}}{2} = \frac{5 \pm \sqrt{17}}{2}$

$x^2 - 3x - 2 = 0 \Rightarrow \begin{cases} S = -b/a = 3 \\ P = c/a = -2/1 = -2 \end{cases}$

الف) $9 - 2(2) = 13$

ب) $S^2 - 3SP - 2P = 3^2 - 3(3)(-2) - 2(-2) = 9 + 18 + 4 = 31$