

الف) $x^2 - 2(3x) + 9 = 1$

$\rightarrow (x-3)^2 = 1$

$\rightarrow x-3 = \pm 1 \rightarrow \begin{cases} x=4 \\ x=2 \end{cases}$

ب) $x^2 + 2(4x) + 14 = 9$

$\rightarrow (x+4)^2 = 9$

$\rightarrow x+4 = \pm 3 \rightarrow \begin{cases} x=-1 \\ x=-7 \end{cases}$

الف) $x^2 - 5x + 4 \Rightarrow (x-2)(x-3) = 0 \rightarrow \boxed{x=2, 3}$

ب) $x^2 - 5x - 14 \Rightarrow (x-7)(x+2) = 0 \rightarrow \boxed{x=7, -2}$

فرمول دلتا $\Delta = b^2 - 4ac \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a}$

الف) $x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(1)(-2)}}{2(1)} = \frac{3 \pm \sqrt{9+8}}{2} = \frac{3 \pm \sqrt{17}}{2}$

ب) $x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(-3)}}{2(1)} = \frac{4 \pm \sqrt{16+12}}{2} = \frac{4 \pm \sqrt{28}}{2} = \frac{4 \pm 2\sqrt{7}}{2} = 2 \pm \sqrt{7}$

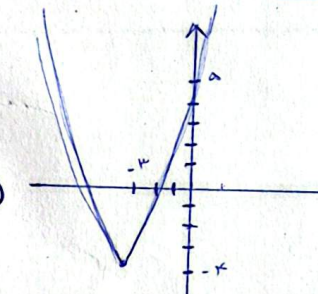
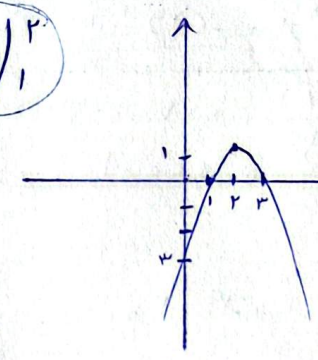
نکته: if $\rightarrow a+b+c=0 \rightarrow x=1, \frac{c}{a}$
 $\rightarrow a+c=b \rightarrow x=-1, -\frac{c}{a}$

الف) $1 + (-3) + 2 = 0 \rightarrow \boxed{x=1, 2}$

ب) $4 + (-3) = 1 \rightarrow \boxed{x=-1, \frac{3}{4}}$

الف) $x^2 - 12x + 35 = 0 \rightarrow (x-7)(x-5) = 0 \rightarrow x=7, 5 \rightarrow \boxed{x=\frac{7}{5}, 1}$

ب) $x^2 - 10x + 21 = 0 \rightarrow (x-7)(x-3) = 0 \rightarrow x=7, 3 \rightarrow \boxed{x=\frac{7}{3}, 1}$

$\Delta = b^2 - 4ac$ $\begin{cases} + \rightarrow \text{ریشه مثبت} \\ 0 \rightarrow \text{ریشه مضاعف} \\ - \rightarrow \text{ریشه منفرجه} \end{cases}$ الف) $45x^2 - 12x + 13 > 0$ حقیقی ب) $(x-1)^2 - 14x - 15 < 0$ بدون ریشه	الف) $(-4)^2 - 14 = 0 = 0$ مضاعف ب) $(-1)^2 - 14 = -13 < 0$ بدون ریشه
الف) $\Delta > 0 \rightarrow 9 - 18a > 0 \rightarrow a < \frac{9}{18}$ ب) $\Delta = 0 \rightarrow 9 - 18a = 0 \rightarrow a = \frac{9}{18}$ ج) $\Delta < 0 \rightarrow 9 - 18a < 0 \rightarrow a > \frac{9}{18}$ د) $\Delta \geq 0 \rightarrow 9 - 18a \geq 0 \rightarrow a \leq \frac{9}{18}$	7
الف) $a > 0 \rightarrow \min$  $\left. \begin{aligned} -\frac{b}{2a} &\rightarrow -\frac{4}{2} = -2 \\ -\frac{\Delta}{4a} &\rightarrow -\frac{34-16}{4} = -\frac{18}{4} = -4.5 \end{aligned} \right\} \text{ext} \begin{cases} -3 \\ -4 \end{cases}$ ب)	1
الف) $a < 0 \rightarrow \max$  $\left. \begin{aligned} -\frac{b}{2a} &\rightarrow -\frac{4}{-2} = 2 \\ -\frac{\Delta}{4a} &\rightarrow -\frac{14-16}{-4} = \frac{2}{4} = 0.5 \end{aligned} \right\} \text{ext} \begin{cases} 2 \\ 0.5 \end{cases}$ ب) $a+b+c=0$ داخل شغل 1, 3 $\rightarrow -1+4-3=0 \rightarrow x=1, 3$	9
فکت: $S = -\frac{b}{a}, P = \frac{c}{a}$ الف) $9x^2 - 4x - 2 = 13$ ب) $3x^2 - 3(x)(-2) = 45$	10