

الف) $x^2 - 4x + 1 + 1 = 1 \Rightarrow (x-2)^2 = 1 \Rightarrow (x-2)^2 - 1 = 0 \Rightarrow (x-2-1)(x-2+1)$
 $\Rightarrow (x-3)(x-1)$
 ب) $x^2 + 11x + 17 + 9 = +9 \Rightarrow (x+4)^2 = +9 \Rightarrow x+4 = \pm 3$
 $\Rightarrow x = -7$
 $x = -1$

الف) $x^2 - 5x + 4 = 0 \Rightarrow (x-3)(x-2) = 0 \Rightarrow \begin{cases} x=3 \\ x=2 \end{cases}$
 ب) $x^2 - 5x - 14 = 0 \Rightarrow (x+2)(x-7) = 0 \Rightarrow \begin{cases} x=-2 \\ x=7 \end{cases}$

الف) $\frac{-(-3) \pm \sqrt{(-3)^2 - (4 \times -5)}}{2} = \frac{3 \pm \sqrt{29}}{2}$

ب) $\frac{-(-4) \pm \sqrt{(-4)^2 - (4 \times \frac{1}{2} \times 2)}}{4} = \frac{4 \pm \sqrt{12}}{4} = \frac{2 \pm \sqrt{3}}{2}$

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

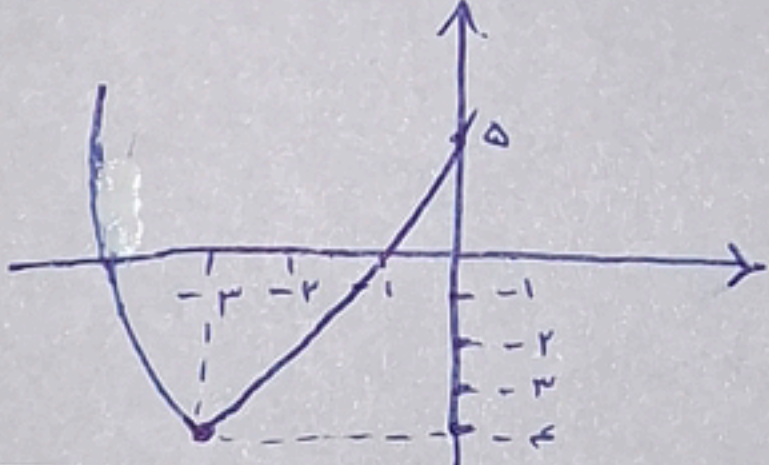
ب) $4x^2 + x - 1 = 0$
 $a+c=b$
 نکته: $-\frac{c}{a} = \frac{1}{4}$

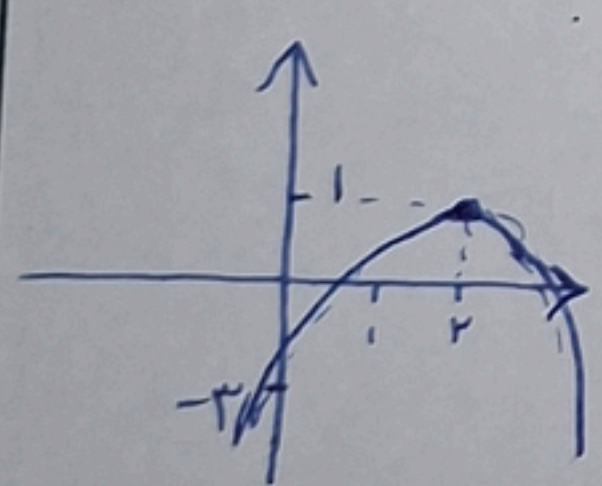
الف) $x^2 - 12x + 35 = 0 \Rightarrow (x-7)(x-5) = 0 \Rightarrow \begin{cases} x = \frac{5}{5} = 1 \\ x = \frac{7}{5} \end{cases}$

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

الف $\Delta = b^2 - 4ac$ $\Delta = 25 - 12 = 13$ $\Delta > 0$ ★ دو ریشه متمایز دارد
 ب) $\Delta = 1 - 14 = -13$ $\Delta < 0$ ★ ریشه حقیقی ندارد
 ج) $\Delta = 14 - 14 = 0$ $\Delta = 0$ ★ یک ریشه مضاعف دارد
 د) $\Delta = 1 - 8 = -7$ ★ ریشه حقیقی ندارد

الف $\Delta = 9 - 4 \times 2 \times a$ $\{a \in \mathbb{R} \mid a < \frac{9}{8}\}$
 ب $a = \frac{9}{8}$
 ج $\{a \in \mathbb{R} \mid a > \frac{9}{8}\}$
 د $\{a \in \mathbb{R} \mid a \leq \frac{9}{8}\}$

$-\frac{b}{2a} = \frac{-4}{2} = -2$ الف، میبینیم دارد، $\begin{vmatrix} -3 \\ -4 \end{vmatrix}$
 $y = (-2)^2 - 11 + 5 = -4$


$-\frac{b}{2a} = \frac{-4}{-2} = +2$ الف $\begin{vmatrix} 2 \\ 1 \end{vmatrix}$
 $-2^2 + 11 - 3 = +1$

 $a+b+c=0$ ب $-x^2 + 4x - 3 = 0$
 $\begin{matrix} \swarrow & \searrow \\ 1=x & \frac{c}{a} = \frac{-3}{-1} = 3=x \end{matrix}$

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

$\left(\frac{3+\sqrt{17}}{2} + \frac{3-\sqrt{17}}{2}\right)^2 - 4 \times \frac{3+\sqrt{17}}{2} \times \frac{3-\sqrt{17}}{2} = 3^2 - (-4) = 9+4 = 13$
 $3^2 - 3 \times \frac{3+\sqrt{17}}{2} - 2 = 27 - (-11) = 38$

$S = \frac{3}{2}$
 $P = -2$