

الف) $x^2 - 4x + 1 = 0 \xrightarrow{+1} x^2 - 4x + 4 = 1 \rightarrow (x-2)^2 = 1 \rightarrow \begin{cases} (x-2) = 1 \rightarrow x = 3 \\ (x-2) = -1 \rightarrow x = 1 \end{cases}$

ب) $x^2 + 1x + 7 = 0 \xrightarrow{+9} x^2 + 1x + 14 = 9 \rightarrow (x+1)^2 = 9 \rightarrow \begin{cases} (x+1) = 3 \rightarrow x = 2 \\ (x+1) = -3 \rightarrow x = -4 \end{cases}$

الف) $x^2 - 5x + 4 = 0 \rightarrow (x-1)(x-4) = 0 \rightarrow \begin{cases} x = 1 \\ x = 4 \end{cases}$

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

الف) $x^2 - 3x - 4 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow x = \frac{3 \pm \sqrt{9 - 4 \times 1 \times -4}}{2} = \begin{cases} x = \frac{3 + \sqrt{25}}{2} \\ x = \frac{3 - \sqrt{25}}{2} \end{cases}$

ب) $2x^2 - 7x + \frac{1}{2} = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow x = \frac{7 \pm \sqrt{49 - 4 \times 2 \times \frac{1}{2}}}{4} = \begin{cases} x = \frac{7 + \sqrt{45}}{4} \\ x = \frac{7 - \sqrt{45}}{4} \end{cases}$

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

ب) $4x^2 + x - 3 = 0 \xrightarrow{(1, 3)}$
 $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow x = \frac{-1 \pm \sqrt{1 - 4 \times 4 \times -3}}{8} = \begin{cases} x = \frac{3}{4} \\ x = -1 \end{cases}$

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

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

دلتا صفت مع معادله دارای دو ریشه $\Delta = b^2 - 4ac = 25 - 4 \times 3 - 1 = 13$ الف $3x^2 + 5x - 1 = 0$

دلتا منفی مع معادله رسته در مجموعه اعداد حقیقی ندارد $\Delta = b^2 - 4ac = 1 - 4 \times 2 \times 2 = -15$ ب $2x^2 - x + 2 = 0$

دلتا صفر مع معادله یک رسته مضاعف دارد $\Delta = b^2 - 4ac = 14 - 4 \times 2 \times 2 = 0$ ج $2x^2 - 4x + 2 = 0$

دلتا منفی مع معادله رسته در مجموعه اعداد حقیقی ندارد $\Delta = b^2 - 4ac = 1 - 4 \times 2 \times 1 = -7$ د $2x^2 - x + 1 = 0$

الف $\Delta = b^2 - 4ac > 0 \rightarrow 9 - 1a > 0 \rightarrow -1a > -9 \rightarrow a < 9$ (دلتا صفت شود)

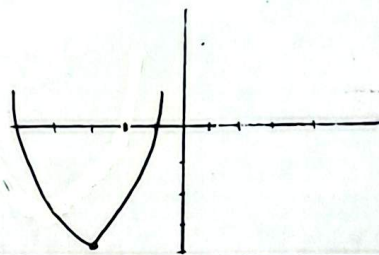
ب $\Delta = b^2 - 4ac = 0 \rightarrow 9 - 1a = 0 \rightarrow a = 9$ (دلتا صفر شود)

ج $\Delta = b^2 - 4ac < 0 \rightarrow 9 - 1a < 0 \rightarrow a > 9$ (دلتا منفی شود)

د $\Delta > 0 \rightarrow 9 - 1a > 0 \rightarrow a < 9$ (دلتا صفت شود)

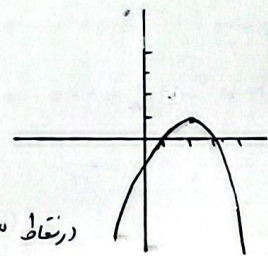
الف $y = -\Delta / 2a \rightarrow -(b^2 - 4ac) / 2a = -(34 - 4 \times 1 \times 5) / 2 \times 1 = -14 / 2 = -7$

ب $x = -b / 2a = -4 / 2 = -2$ محضات نقطه استرس $1 - 4$



الف $y = -\Delta / 2a = -(b^2 - 4ac) / 2a = -(14 - 4 \times 1 \times 3) / 2 \times 1 = 1$

ب $x = -b / 2a = -4 / 2 = -2$ محضات نقطه استرس $1 - 4$



ب $-x^2 + 4x - 3 = 0 \rightarrow a + c + b = 0 \rightarrow x = 1$

$x = c/a = 3$

$x^2 - 3x - 2 = 0$ (ریشه دلتا) $x = -b \pm \sqrt{b^2 - 4ac} / 2a \rightarrow 3 \pm \sqrt{9 - 1} / 2 = 3 \pm \sqrt{8} / 2$

$S = 2 + 1 = 3$ $P = 2 \times 1 = 2$

الف $(2)^2 - 2(2) = 0$

ب $(2)^3 - 3(2)(2) = -4$