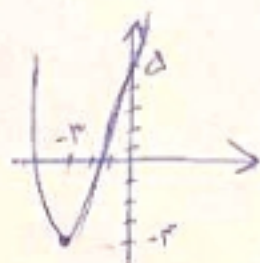
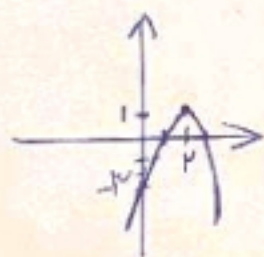


الف) $y = x^2 + 6x + 5 = 9 - 11 + 5 = -4$
 $\frac{-b}{2a} = \frac{-6}{2} = -3 = x$
 $\alpha > 0 \rightarrow$ معینوم
 $\begin{bmatrix} -3 \\ -4 \end{bmatrix}$



ب)

الف) $y = -x^2 + 4x - 3 = -4 + 1 - 3 = -1$
 $\frac{-b}{2a} = \frac{-4}{2(-1)} = 2 = x$
 $\alpha < 0$
 $-x^2 + 4x - 3 = 0$
 $a + b + c = 0$
 $x = \frac{c}{a} = \frac{-3}{-1} = 3$
 $x = 1 \Rightarrow \begin{bmatrix} 1 \\ 0 \end{bmatrix}$ و $\begin{bmatrix} 3 \\ 0 \end{bmatrix}$
 $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$



ب)

الف) $2x^2 - 3x + \alpha = 0$ $\Delta > 0$
 $\Delta = b^2 - 4ac = 9 + (-4)(1)(\alpha) \rightarrow \alpha = -1$
 $9 + (-1)(c) \Delta < 0$ (ج)
 $c = 2 \rightarrow \alpha = 2$

$2 - 3 + \alpha = 0$ ($\alpha = 1$)

ب) $9 + (-1)(c) = 0 \rightarrow \Delta = 0$
 $c = \frac{-9}{-1} = 9 = 1, 12 \Delta = \alpha$

الف) $x^2 - 2x - 1 = 0$ $x^2 - 2x = 1$ $x^2 - 2x + 1 = 1 + 1$
 $(x-1)^2 = 2 \rightarrow x-1 = \pm\sqrt{2} \rightarrow x = 1 \pm \sqrt{2}$

ب) $x^2 - x - 1 = 0$ $x^2 - x = 1$ $x^2 - x + \frac{1}{4} = 1 + \frac{1}{4}$
 $(x - \frac{1}{2})^2 = \frac{5}{4} \rightarrow x - \frac{1}{2} = \pm\sqrt{\frac{5}{4}} \rightarrow x = \frac{1}{2} \pm \sqrt{\frac{5}{4}}$

الف) $x^2 - 2x - 1 = 0$ $\Delta = b^2 - 4ac = 4 + (-4)(1)(-1) = 1$ $\Delta > 0$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \frac{2 - \sqrt{1}}{2}$ و $\frac{2 + \sqrt{1}}{2} = x$

ب) $x^2 + x - 4 = 0$ $\Delta = 1 + (-4)(1)(-4) = 17$ $\Delta > 0$
 $x = \frac{-1 \pm \sqrt{17}}{2}$ و $\frac{-1 - \sqrt{17}}{2}$

$$x^2 - 11x + 21 = 0 \rightarrow (x-7)(x-3) = 0 \quad (\text{الف})$$

$$\begin{matrix} -7 & -3 \end{matrix} \quad x=7 \quad x=3$$

$$x^2 + 13x - 21 = 0 \rightarrow (x+7)(x-3) = 0 \quad (\text{ب})$$

$$\begin{matrix} +7 & -3 \end{matrix} \quad x=-7 \quad x=3$$

$$\Delta x^2 - 12x + 21 = 0 \rightarrow x^2 - 12x + 36 \rightarrow (x-6)(x-6) = 0 \quad (\text{الف})$$

$$\begin{matrix} -6 & -6 \end{matrix} \quad x=6 \quad x=6$$

$$\boxed{x = \frac{6}{1}} \quad \text{و} \quad \boxed{x = \frac{6}{1} = 1} \leftarrow \text{ریشه اصلی}$$

$$3x^2 - 10x + 7 = 0 \quad x^2 - 10x + 21 = 0 \rightarrow (x-7)(x-3) = 0 \rightarrow x=7 \quad (\text{ب})$$

$$\begin{matrix} -7 & -3 \end{matrix} \quad \boxed{x = \frac{7}{3} = 1} \quad \text{و} \quad \boxed{x = \frac{3}{1} = 3} \leftarrow \text{ریشه اصلی} \quad x=3$$

$$2x^2 - 2x + 1 = 0 \quad \Delta = b^2 - 4ac \quad (\text{ج}) \quad 2x^2 - 2x + 3 = 0 \quad (\text{الف})$$

$$\Delta = 2^2 - 4(2)(1) = -4 \quad x = \frac{-b \pm \sqrt{\Delta}}{2a} \quad 2 - 2 + 3 = 0 \quad \begin{cases} x=1 \\ x = \frac{c}{a} = \frac{3}{2} \end{cases}$$

$$x = \frac{2 \pm \sqrt{-4}}{2} \quad 2x^2 + 5x + 9 = 0 \quad (\text{د})$$

$$\Delta = 5^2 - 4(2)(9) = -47 \rightarrow \Delta < 0 \quad \text{ریشه حقیقی ندارد}$$

$$2x^2 + 5x + 3 = 0 \quad (\text{ب})$$

$$2 + 3 = 5 \quad \begin{cases} x=-1 \\ x = \frac{-c}{a} = \frac{-3}{2} \end{cases}$$

$$S^2 - 2P = 9 \rightarrow \frac{(-3)}{+3} = \frac{13}{6} \quad (\text{الف}) \quad x^2 - 13x - 2 = 0 \quad \text{جمع} = S = \frac{-b}{a}$$

$$\text{ضرب} = P = \frac{c}{a}$$

$$S^2 - 2SP = 2V - 2(\frac{13}{6})(\frac{-2}{1}) = (\text{ب})$$

$$= 2V + 11 = \frac{13}{3}$$

$$S = \frac{13}{1} = 13$$

$$P = \frac{-2}{1} = -2$$

$$\begin{pmatrix} V \\ d \end{pmatrix} = \begin{pmatrix} V \\ 1 \end{pmatrix} = \frac{V \times 1}{1 \times 1} = 21 \quad \begin{pmatrix} 9 \\ 1 \end{pmatrix} = \frac{9 \times 1}{1 \times 1} = 9 \quad (\text{الف})$$

$$13 + 21 = \frac{2V}{6}$$

$$\begin{pmatrix} 9 \\ 1 \end{pmatrix} = \frac{9 \times 1 \times V}{1 \times 1 \times 1} = 18 \quad \begin{pmatrix} 1 \\ 1 \end{pmatrix} = \frac{1 \times 1}{1 \times 1} = 1 \quad (\text{ب})$$

$$18 - 21 = \frac{2V}{6}$$