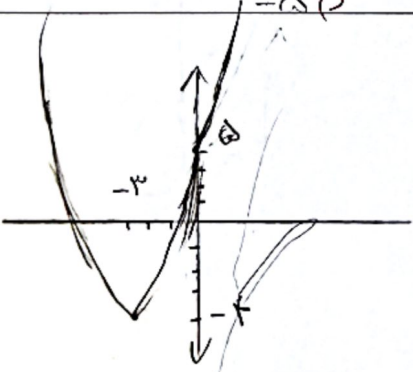


|                                                                                                                    |                                                                                                                                    |                                                                                                                                                                                        |                                                                                                        |    |   |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----|---|
| $2m^2 - m + 1 = 0$ (ج)<br>$\Delta = 1 - 4 = -3$<br>$\ominus \Rightarrow$ ریشه ندارد                                | $2m^2 - 4m + 2 = 0$ (ب)<br>$\Delta = 14 - 14 = 0$<br>$\odot \Rightarrow$ ریشه یک نقطه دارد<br>ریشه تار                             | $2m^2 - m + 2 = 0$ (ب)<br>$\Delta = 1 - 14 = -13$<br>$\ominus \Rightarrow$ ریشه ندارد                                                                                                  | $-3m^2 + dm - 1 = 0$ (الف)<br>$\Delta = b^2 - 4ac$<br>$2d - 12 = 13$<br>$\oplus \Rightarrow$ ریشه دارد | 6  |   |
| $\Delta = 9 - (14a)$                                                                                               | $a > \frac{9}{14}$ (ج)<br>دلتا بزرگتر از صفر<br>ریشه دارد                                                                          | $a = \frac{9}{14}$ (ب)<br>دلتا برابر صفر<br>ریشه دارد                                                                                                                                  | $a < \frac{9}{14}$ (الف)<br>دلتا کوچکتر از صفر<br>ریشه ندارد                                           | 7  |   |
| $-v$ (الف)<br>$+v$ (ب)<br>$\frac{9}{14}$ (ج)<br>$-a$ (د)                                                           | $a \leq \frac{9}{14}$ (د)<br>دلتا بزرگتر یا مساوی صفر<br>ریشه دارد                                                                 |                                                                                                                                                                                        |                                                                                                        |    |   |
|                                  | (ب)                                                                                                                                | $a > 0 \Rightarrow \min$ (الف)<br>$x^2 + 4x + d = y$<br>$\frac{-b}{2a} = \frac{-4}{2} = -2$<br>$(-2)^2 + 4(-2) + d = -4$<br>$\min \left  \begin{matrix} -2 \\ -4 \end{matrix} \right.$ |                                                                                                        |    | 1 |
| $-x^2 + 4x - 3 = 0$ (ب)<br>$a + b + c = 0 \Rightarrow$<br>$n = 1$<br>$n = \frac{c}{a} = 3$<br>$ 1 ,  3 $ ریشه نقطه |                                                 | $y = -x^2 + 4x - 3$ (الف)<br>$a < 0 \Rightarrow \max$<br>$\frac{-b}{2a} = \frac{-4}{-2} = 2$<br>$-x^2 + 4x - 3 = 1$<br>$\max \left  \begin{matrix} 2 \\ 1 \end{matrix} \right.$        |                                                                                                        |    | 9 |
| $S^3 - 3SP = 0$ (ب)<br>$3^3 - (3 \times 3 \times -2) =$<br>$-18$<br>$27 - (-18) = 45$                              | $x^2 - 3x - 2 = 0$ (الف)<br>$S = \frac{-b}{a} = 3$ $P = \frac{c}{a} = -2$<br>$S^2 - 2P = 3^2 - (2 \times -2) =$<br>$9 - (-4) = 13$ |                                                                                                                                                                                        |                                                                                                        | 10 |   |

$$\begin{aligned} x^2 + 1x + 7 &= 0 \quad (ب) \\ x^2 + 1x + 14 - 7 &= 0 \\ (x+7)^2 - 4 &= 0 \Rightarrow \\ x &= -1 \\ x &= -7 \end{aligned}$$

$$\begin{aligned} x^2 - 4x + 1 &= 0 \quad (الف) \\ x^2 - 4x + 4 - 1 &= 0 \\ (x-2)^2 - 1 &= 0 \Rightarrow \\ x &= 1 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} x^2 - 5x - 14 &= 0 \quad (ب) \\ (x-7)(x+2) &= 0 \\ x &= 7 \\ x &= -2 \end{aligned}$$

$$\begin{aligned} x^2 - 5x + 4 &= 0 \quad (الف) \\ (x-2)(x-3) &= 0 \\ x &= 2 \\ x &= 3 \end{aligned}$$

$$2x^2 - 4x + \frac{1}{2} = 0 \quad (ب)$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{4 \pm \sqrt{12}}{4} = \frac{4 \pm 2\sqrt{3}}{4} = \frac{2 \pm \sqrt{3}}{2} \\ x &= \frac{-b - \sqrt{\Delta}}{2a} = \frac{4 - \sqrt{12}}{4} = \frac{4 - 2\sqrt{3}}{4} = \frac{2 - \sqrt{3}}{2} \end{aligned}$$

$$\begin{aligned} x^2 - 3x - 6 &= 0 \quad (الف) \\ x &= \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm \sqrt{29}}{2} \\ x &= \frac{-b - \sqrt{\Delta}}{2a} = \frac{3 - \sqrt{29}}{2} \end{aligned}$$

$$\begin{aligned} a+c &= b \\ 4-3 &= 1 \checkmark \Rightarrow \\ x &= -1 \\ x &= -\frac{c}{a} = \frac{3}{4} \end{aligned}$$

$$\begin{aligned} x^2 - 3x + 2 &= 0 \quad (الف) \\ (x-2)(x-1) &= 0 \\ x &= 1 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} 2x^2 - 10x + 7 &= 0 \quad (ب) \\ x^2 - 10x + 71 &= 0 \\ (x-3)(x-7) &= 0 \\ x &= \frac{7}{3} \\ x &= \frac{3}{7} = 1 \end{aligned}$$

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