

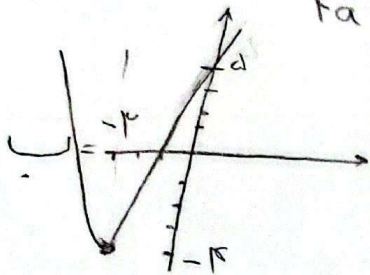
الف) $\min$

۱) ext

$$\frac{-b}{1a} = \frac{-4}{1} = -4$$

$$\frac{-b^2 + 4ac}{4a} = \frac{-16 + 4 \cdot 1 \cdot 1}{4} = -3$$

$$\begin{vmatrix} -4 \\ -3 \end{vmatrix}$$



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الف)

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۱) ext max

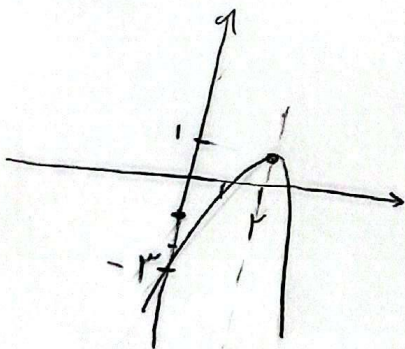
$$\frac{-b}{1a} = \frac{4}{1} = 4$$

$$\frac{-\Delta}{4a} = \frac{b^2 - 4ac}{-4a} = \frac{16 - 4 \cdot 1 \cdot 1}{-4} = 1$$

$$\begin{vmatrix} 4 \\ 1 \end{vmatrix}$$

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ب)

$$-x^2 + 4x - 3 = 0$$

$$x^2 + 4x + 3 = 0$$

$$(x+1)(x+3) \Rightarrow x = \frac{-1}{-1} = 1$$

$$x = \frac{-3}{-1} = 3$$

الف) $\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow 9 - 16a > 0$

$$\frac{9}{16} > a$$

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از این سوال صحت پیدا

ب) $\Delta = 0 \Rightarrow b^2 - 4ac = 0 \Rightarrow 9 - 4a = 0$

$$\boxed{a = \frac{9}{4}}$$

ج) $\Delta < 0 \Rightarrow b^2 - 4ac < 0 \Rightarrow 9 - 4a < 0$

$$\boxed{\frac{9}{4} < 4a}$$

د) $\Delta > 0 \Rightarrow b^2 - 4ac > 0$

$$\boxed{\frac{9}{4} > 4a}$$

الف) $m^2 - 2m - 1 = 0 \Rightarrow m^2 - 2m + 1 = 2 \Rightarrow (m-1)^2 = 2$

$$\begin{aligned} m-1 &= \sqrt{2} \Rightarrow m = 1 + \sqrt{2} \\ m-1 &= -\sqrt{2} \Rightarrow m = 1 - \sqrt{2} \end{aligned}$$

 ب) $m^2 - m - 1 = 0 \Rightarrow m^2 - m + \frac{1}{4} = \frac{5}{4} \Rightarrow (m - \frac{1}{2})^2 = \frac{5}{4}$

$$\begin{aligned} m - \frac{1}{2} &= \frac{\sqrt{5}}{2} \Rightarrow m = \frac{1 + \sqrt{5}}{2} \\ m - \frac{1}{2} &= -\frac{\sqrt{5}}{2} \Rightarrow m = \frac{1 - \sqrt{5}}{2} \end{aligned}$$

الف) $m^2 - 2m - 1 = 0 \Rightarrow m = \frac{2 \pm \sqrt{4 + 4}}{2} = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$

ب) $m^2 + m - 2 = 0 \Rightarrow m = \frac{-1 \pm \sqrt{1 + 8}}{2} = \frac{-1 \pm \sqrt{9}}{2} = \frac{-1 \pm 3}{2}$

$$\begin{aligned} m &= \frac{-1 + 3}{2} = 1 \\ m &= \frac{-1 - 3}{2} = -2 \end{aligned}$$

الف) $(x-7)(x-2) = 0 \Rightarrow x = 7, 2$

ب) $(x+7)(x-2) = 0 \Rightarrow x = -7, 2$

الف) $\Delta m^2 - 12m + 20 = 0 \Rightarrow m^2 - 12m + 36 = 0 \Rightarrow (m-6)^2 = 0 \Rightarrow m = 6$

$$\frac{m}{\Delta} = \frac{6}{1} = 6$$

ب) $\Delta m^2 - 10m + 16 = 0 \Rightarrow m^2 - 10m + 16 = 0 \Rightarrow (m-2)(m-8) = 0 \Rightarrow m = 2, 8$

$$\frac{m}{\Delta} = \frac{2}{1} = 2$$

$$2m^2 - 5m + 2 = 0 \Rightarrow \begin{aligned} m &= 1 \\ m &= \frac{2}{5} \end{aligned}$$

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$$\text{ب) } 2m^2 + 5m + 2 = 0 \Rightarrow \begin{aligned} m &= -1 \\ m &= -\frac{2}{5} \end{aligned}$$

$$\text{ج) } 2m^2 - 5m + 1 = 0 \Rightarrow m = \frac{5 \pm \sqrt{25 - 8}}{4} \Rightarrow \frac{5 + \sqrt{17}}{4} \text{ و } \frac{5 - \sqrt{17}}{4}$$

$$\text{د) } 2m^2 + 7m + 9 = 0 \Rightarrow m = \frac{-7 \pm \sqrt{49 - 72}}{4}$$

Δ < 0 ⇒ ریشه حقیقی ندارد

$$S = \frac{-b}{a} \quad P = \frac{c}{a}$$

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$$\text{الف) } \left(\frac{2}{1}\right)^2 - 2\left(\frac{-2}{1}\right) = 9 + 4 = 13$$

$$\text{ب) } \left(\frac{2}{1}\right)^2 - 3\left(\frac{2}{1}\right)\left(\frac{-2}{1}\right) = 4 + 12 = 16$$

$$\text{الف) } \frac{2 \times 2}{1 \times 1} + \frac{9 \times 2}{1 \times 1} = 4 + 18 = 22$$

⑤
⑥

$$\text{ب) } \frac{9 \times 2 \times 2}{1 \times 1 \times 1} - \frac{4 \times 2 \times 2}{1 \times 1 \times 1} = 36 - 16 = 20$$