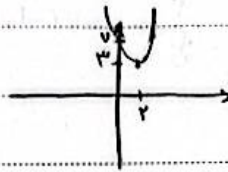


کتاب شماره ۱۲

باز هم مختار ب

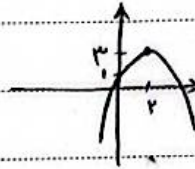
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باز هم مختار

$$y = x^2 - 2x + 7 \rightarrow \min \Rightarrow \begin{cases} -\frac{b}{2a} = \frac{2}{2} = 1 \\ 1 - 1 + 7 = 7 \end{cases}$$



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$$y = x^2 + 2x - 1 \rightarrow \min \Rightarrow \begin{cases} -\frac{b}{2a} = \frac{-2}{2} = -1 \\ -1 + 1 - 1 = -1 \end{cases}$$



$$x^2 + (m+1)x + \frac{1}{4}m + 2 = 0$$

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(الف) $\Delta > 0 \Rightarrow (m+1)^2 - 2(m+1) > 0 \Rightarrow m^2 + 2m + 1 - 2m - 2 > 0 \Rightarrow m^2 - 1 > 0 \Rightarrow (m-1)(m+1) > 0 \Rightarrow m < -1 \text{ or } m > 1$

$\Delta < 0 \Rightarrow (m+1)^2 - 2(m+1) < 0 \Rightarrow m^2 - 1 < 0 \Rightarrow (m-1)(m+1) < 0 \Rightarrow -1 < m < 1$

(ب) $\Delta = 0 \Rightarrow (m+1)^2 - 2(m+1) = 0 \Rightarrow m^2 - 1 = 0 \Rightarrow (m-1)(m+1) = 0 \Rightarrow m = 1 \text{ or } m = -1$

$$m = \{-1, 1\}$$

(ج) $\Delta < 0 \Rightarrow (m+1)^2 - 2(m+1) < 0 \Rightarrow m^2 - 1 < 0 \Rightarrow (m-1)(m+1) < 0 \Rightarrow -1 < m < 1$

$$\frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm i\sqrt{3}}{2} \Rightarrow m = \frac{-1 \pm i\sqrt{3}}{2}$$

(د) $\Delta > 0 \Rightarrow (m+1)^2 - 2(m+1) > 0 \Rightarrow m^2 - 1 > 0 \Rightarrow (m-1)(m+1) > 0 \Rightarrow m < -1 \text{ or } m > 1$

$$\frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm i\sqrt{3}}{2} \Rightarrow m = \frac{-1 \pm i\sqrt{3}}{2}$$

$$\Delta = (2(m+1))^2 - 4(m-2)(1) = 4m^2 + 8m + 4 - 4m + 8 = 4m^2 + 4m + 12$$

$$y = (m-2)x^2 - 2(m+1)x + 1$$

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(الف) $\alpha, \beta < 0 \Rightarrow p > 0, S < 0, \Delta > 0$ $\textcircled{D} \Delta > 0 \Rightarrow 4m^2 + 4m + 12 > 0 \Rightarrow m^2 + m + 3 > 0$

$\textcircled{P} \frac{-b}{a} < 0 \Rightarrow \frac{2(m+1)}{m-2} < 0 \Rightarrow \frac{-1 \pm \sqrt{1-4}}{2} < 0 \Rightarrow (-1, 2)$

$\textcircled{Q} \frac{c}{a} > 0 \Rightarrow \frac{1}{m-2} > 0 \Rightarrow m > 2$

ا. $S < 0$ $P < 0$ $\Delta > 0$ ① $\varepsilon m^2 - 2(m+1)\varepsilon > 0$ ✓ + 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100

⑤ $\frac{-b}{a} < 0 \rightarrow \frac{m+1}{m-1} < 0 \rightarrow \frac{-1}{+1} \frac{1}{-1} \Rightarrow (-1, 1)$
⑥ $\frac{c}{a} < 0 \rightarrow \frac{10}{m-1} < 0 \rightarrow m < 1$
} $n \rightarrow m = (-1, 1)$

ا. $y = (m-1)x^2 - 2(m+1)x + 10$
① $P < 0 \Rightarrow \frac{c}{a} = \frac{10}{m-1} < 0 \rightarrow m < 1$

ب. $x = -1 \rightarrow \frac{-b}{2a} = -1 \Rightarrow \frac{m+1}{m-1} = -1 \Rightarrow -m-1 = m-1 \rightarrow 2m = 2 \rightarrow m = 1$

$\frac{r}{p} - (r \sin \alpha) x + \frac{r}{p} = 0$ $\Delta \geq 0 \Rightarrow (r \sin \alpha)^2 - 4(\frac{r}{p} \times \frac{r}{p}) = r^2 \sin^2 \alpha - 4 \frac{r^2}{p^2} \geq 0$
 $\Rightarrow \sin^2 \alpha \geq 1 \rightarrow \sin^2 \alpha = 1 \Rightarrow \sin \alpha = 1 \rightarrow \frac{r}{p} x^2 - 2x + \frac{r}{p} = 0 \rightarrow \Delta = 0 \rightarrow x = \frac{1 \pm \sqrt{0}}{\frac{r}{p}} \rightarrow x = \frac{p}{r}$
 $\sin \alpha = -1 \rightarrow \frac{r}{p} x^2 + 2x + \frac{r}{p} = 0 \rightarrow \Delta = 0 \rightarrow x = \frac{-1 \pm \sqrt{0}}{\frac{r}{p}} \rightarrow x = -\frac{p}{r}$

$\frac{(rx^2 - rx - 1)(rx^2 - rx - d)}{1 - x^2}$
 $a+b+c=0 \rightarrow x = 1, -\frac{1}{r}$
 $a+c=b \rightarrow x = -1, \frac{d}{r}$
 $\Rightarrow \frac{(x-1)(x+\frac{1}{r})(x+1)(x-\frac{d}{r})}{(1-x)(1+x)} = \frac{-1}{(1-x)(1+x)}$
 $\Rightarrow -x^2 + \frac{1}{r}x + \frac{d}{r} = -4x^2 + 11x + d \rightarrow y = \frac{-d}{\frac{1}{r}} = \frac{r \Delta}{r \varepsilon}$

$m x^2 - (m+1)x - 1 = 0 \rightarrow P S = \Delta P + V \Rightarrow P(\frac{m+1}{m}) = \Delta(\frac{-1}{m}) + V \rightarrow \frac{m+1}{m} = \frac{-10}{m} + \frac{V}{m}$

$\frac{m}{m} \rightarrow \frac{m+1}{m} = \frac{-10}{m} + \frac{V}{m} \Rightarrow 6m = 14 \Rightarrow m = \frac{7}{3}$

$\alpha^2 + \beta^2 = S^2 - 2P = (\frac{1}{\varepsilon})^2 - \frac{2x-1}{\varepsilon} = \frac{1}{\varepsilon^2} + \frac{2}{\varepsilon} - \frac{1}{\varepsilon} = \frac{1}{\varepsilon^2} + \frac{1}{\varepsilon}$

$x^2 - \Delta x + 1 = 0 \rightarrow \beta \alpha = 1 \Rightarrow \beta = \frac{1}{\alpha}$ $S = \Delta$ $P = 1$
 $\frac{F \alpha + B \beta}{\Delta \beta \gamma} = \frac{F \alpha}{\Delta \beta \gamma} + \frac{B \beta}{\Delta} = \frac{F \alpha}{\frac{1}{\alpha \gamma}} + \frac{B \beta}{\Delta} = \frac{F \alpha^2}{\gamma_0} + \frac{F \beta^2}{\gamma_0} = \frac{F(S^2 - 2SP)}{\Delta \gamma_0} = \frac{1 \Delta^2 - 2}{\Delta} = 14$

Year:..... Month:..... Day:.....

$$\begin{aligned}
 & y_1 = ax^r + bx + c \quad (c = \epsilon) \\
 & \left. \begin{aligned} x=1 & \rightarrow \epsilon a + b + \epsilon = 1 \quad \Rightarrow -\Delta a + \Delta b = 1 \rightarrow a + b = 1 \\ x=1 & \rightarrow 4a - 3b + \epsilon = \epsilon \quad \Rightarrow 4a - 3b = 0 \rightarrow 4a = 3b \end{aligned} \right\} \\
 & y_1 = 1x + 10 \quad \Rightarrow \epsilon a = 10 \Rightarrow a = \frac{10}{\epsilon} = 10\epsilon \\
 & b = 3\left(\frac{10}{\epsilon}\right) = 30\epsilon
 \end{aligned}$$

$$\begin{aligned}
 & 1x^r + (m+1)x + m+4 = x \quad , \quad 1x^r + mx + m+4 = 0 \quad \Delta = 0 \quad , \quad m^2 - 1m - 4 = 0 \\
 & (m-1)(m+4) = 0 \quad \Rightarrow m = -4, 1 \quad \Rightarrow m = \{-4\}
 \end{aligned}$$