

کیمیاء عناصری - دوم ذریعہ C - تالیف ۲۳

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$$\textcircled{1} \quad x = \frac{-b}{2a} \xrightarrow{x=-1} -1 = -\frac{b}{2a} \rightarrow b = 2a$$

$$\xrightarrow{y=9, x=1} 9 = a - b + c \rightsquigarrow 9 = a - (2a) + c \rightarrow -a + c = 9 \rightarrow c = a + 9$$

$$\xrightarrow{y=1, x=2} 1 = 4a + 2b + c \quad b=2a, c=a+9 \quad 1 = 4a + 2a + a + 9$$

$$18a = -10 \rightarrow a = -\frac{1}{2}$$

$$b = 2 \times -\frac{1}{2} = -1 \quad c = -\frac{1}{2} + 9 = \frac{17}{2}$$

$$\rightarrow y = -\frac{1}{2}x^2 - x + \frac{17}{2}$$

$$\textcircled{2} \quad 2x^2 + mx + \frac{c}{m+4} = 0 \rightarrow \Delta > 0$$

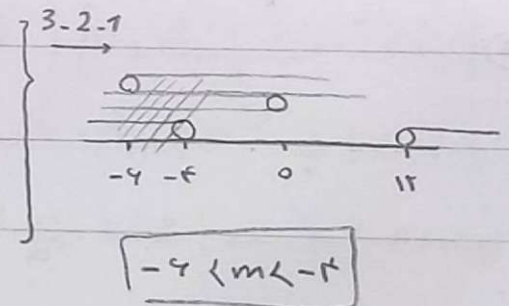
$$\begin{array}{c|cc} & -4 & 12 \\ \hline & + & - & + \end{array} \rightarrow m > 12 \text{ or } m < -4$$

$$m^2 - 16m - 16 > 0 \rightarrow \frac{(m-12)(m+4)}{12 \quad -4} > 0$$

$$P \rightarrow \frac{c}{a} > 0 \rightarrow \frac{m+4}{2} > 0$$

$$m+4 > 0 \rightarrow m > -4 \textcircled{2}$$

$$\frac{-b}{a} > 0 \rightarrow \frac{-m}{2} > 0 \rightarrow -m > 0 \rightarrow m < 0 \textcircled{3}$$



$$\textcircled{3} \quad \Delta > 0$$

$$\frac{-b}{a} = \frac{a}{c} \rightarrow \frac{-2m+1}{2} = \frac{2}{2-m} \rightsquigarrow (2-m)(-2m+1) = 4$$

$$-2m+2+2m^2-m=4 \rightarrow 2m^2-3m-2=0$$

$$2m^2-3m-2=0 \rightarrow m^2-\frac{3}{2}m-1=0 \rightsquigarrow (m+2)(m-4) \rightarrow m = -2 \text{ or } 4$$

$$\star \xrightarrow{m=-2} 2x^2 - 2x + 2 = 4 - (4) < 0 \quad \text{غیر}$$

$$m = \frac{+3}{2}$$

m نقطہ ہاں ای $\frac{+3}{2}$ قابل قبول و مقدار Δ مثبت است (درستی چنی)



Senobar

$$x_1^r + x_1^r + \frac{1}{x_1} + \frac{1}{x_1}$$

$$\underbrace{(x_1^r + x_1^r)}_1 \underbrace{(x_1^r - x_1^r x_1^r + x_1^r)}_{9 - (-r) 1^r} + \frac{x_1^r + x_1^r}{x_1^r x_1^r} \rightarrow 1^r + \frac{1}{-r} \rightarrow \frac{9r-1}{r} = \frac{91}{r} \quad (\text{نفسه})$$

$$x_1 \cdot x_1 = \frac{c}{a} = -r$$

$$x_1 + x_1 = \frac{-b}{a} = 1 \rightarrow (x_1 + x_1)^r = 1 \rightarrow x_1^r + x_1^r + \cancel{\frac{-1}{x_1 x_1}} = 1 \rightarrow x_1^r + x_1^r = [9]$$

$$(x_1^r + \frac{1}{x_1^r})(x_1^r + \frac{1}{x_1^r}) = \underbrace{x_1^r x_1^r}_{(-r)^r = -4r} + \underbrace{x_1^r + x_1^r}_9 + \underbrace{\frac{1}{x_1 x_1}}_{-\frac{1}{r}} \rightarrow -4r + 9 - \frac{1}{r} = \frac{-4r^2 + 9r - 1}{r}$$

$$x^r - 5x + p = 0 \rightarrow x^r - \frac{91}{r}x - \frac{4r^2 + 9r - 1}{r} = 0$$

$$\textcircled{2} \left[\sqrt[r]{x^r} + \frac{1}{\sqrt[r]{x^r}} + 1 \right] \left(\sqrt[r]{x^r} - 1 \right) = \sqrt[r]{x^r} \times \sqrt[r]{x^r} (\sqrt[r]{x^r} + \sqrt[r]{x^r} + 1) (\sqrt[r]{x^r} - 1) = x^r - 1$$

$$x^r - rx - 1 = 0 \rightarrow S = \frac{-b}{a} = \frac{r}{1} = [r]$$

$$\textcircled{4} \frac{-b}{a} = \frac{a}{r}, \frac{c}{a} = \frac{r}{r}$$

$$x_1 = rx_1 \rightarrow x_1 + x_1 = rx_1 = \frac{a}{r} \rightarrow x_1 = \frac{a}{r}$$

$$\frac{a}{r} \times \frac{a}{r} = \frac{a^r}{r^2} = \frac{r}{r} \rightarrow a^r = 4r, a = \pm 1 \rightarrow 1 - (-1) = [2]$$

⑤ $\rightarrow a > 0$ ⑦

$$\frac{-b}{a} \geq 0 \rightarrow \frac{-r-ra}{a} \geq 0 \rightarrow -r-ra \geq 0 \rightarrow -r \geq ra$$

$\rightarrow$ اشتراك این رتی نیست $\rightarrow \textcircled{1} \cap \textcircled{2} = \emptyset$ $\frac{-r}{r} \geq a$ ②
و جواب ندارد

⑧ $y = -x^2 - rx + b \rightarrow x = \frac{-b}{ra} \rightarrow \frac{r}{-r} = -1$

$y = x^2 + ax - r \rightarrow x = \frac{-a}{r} = 1 \rightarrow -a = -r \rightarrow a = r$

$y = \frac{-\Delta}{ra} \rightarrow \frac{-(r+rb)}{ra} = \frac{r+rb}{r} \rightarrow 1+b \rightarrow b = r$

$y = \frac{-\Delta}{ra} = \frac{-(a^2+1)}{r} \rightarrow \frac{-1r}{r} = -r$

$a, b \rightarrow r, r = 1$

④ ① $rx^2 - ax + b = 0 \rightarrow \beta, \alpha$ رتی

② $rax^2 + ax - r = 0 \rightarrow$ رتی $\Rightarrow \alpha' = \alpha + \frac{1}{r} \quad \beta' = \beta + \frac{1}{r}$

⑤ $\begin{cases} S = \frac{-b}{a} \rightarrow \frac{-a}{ra} = -\frac{r}{r} = -\frac{1}{r} \\ P = \frac{c}{a} \rightarrow \frac{-r}{ra} = -\frac{r}{r} = -\frac{r}{r} \end{cases} \quad \begin{cases} S = \frac{-1}{\alpha + \frac{1}{r} + \beta + \frac{1}{r}} = \frac{-1}{r} + 1 = \frac{1}{r} \\ (\alpha + \frac{1}{r}) (\beta + \frac{1}{r}) = -\frac{r}{r} = -\frac{b}{r} \rightarrow b = -r \end{cases}$

$\left[\frac{a, b}{r} \right] \rightarrow \left[\frac{rx-r}{r} \right] = \left[\frac{-r}{r} \right] = -r$

⑩ $\begin{cases} x^2 + 4x + m = 0 \\ x^2 + rx - rm = 0 \end{cases} \xrightarrow{\text{آرشیو کنیم؟}} \begin{cases} t^2 + 4t + m = 0 \rightarrow m = -t^2 - 4t \\ t^2 + rt - rm = 0 \rightarrow t^2 + rt + r(-t^2 - 4t) = 0 \end{cases}$

$\begin{cases} x^2 + 4x + m = 0 \\ x^2 + rx - rm = 0 \end{cases} \xrightarrow{\text{با هم دایره کنیم}} \begin{cases} t^2 + 4t + m = 0 \\ t^2 + rt - rm = 0 \end{cases}$

$t^2 + 4t + m = 0 \rightarrow m = -t^2 - 4t$
 $t^2 + rt - rm = 0 \rightarrow t^2 + rt + r(-t^2 - 4t) = 0$
 $-r(t^2 - 4t)$

$rt^2 + r \cdot t = 0 \rightarrow t = 0$ رتی
 $rt(t+4) = 0 \rightarrow t = -4$

$x = t \rightarrow ra - r \cdot 0 + m = 0 \rightarrow m = 0$

Senobar $\begin{cases} x^2 + 4x + 0 = 0 \rightarrow (x+1)(x+4) \\ x^2 + rx - 10 = 0 \rightarrow \frac{(x-3)(x+5)}{r} \end{cases} \rightarrow r - (-1) = r$