نام و نام خانوادگی ....ابوالفضل ابوالفضلی.... پاسخنامه تشریحی تکلیف شماره ....۱۹.... کلاس ....یازدهم....

۱۹

۱ (۲)

$$3x^2-ax+4=0 \longrightarrow P=\frac{4}{3}\ ,\ S=\frac{a}{3} \Rightarrow 4\alpha=\frac{a}{3} \Rightarrow \alpha=\frac{a}{12}$$

$3\alpha\ ,\ \alpha$

$$\Rightarrow 3\alpha^2=\frac{c}{a}=\frac{4}{3} \Rightarrow 9\alpha^2=4 \Rightarrow \alpha^2=\frac{4}{9} \Rightarrow \alpha=\pm\frac{2}{3}$$

$$\longrightarrow \begin{cases} \frac{a}{12}=\frac{2}{3} \Rightarrow a=8 \\ \frac{a}{12}=-\frac{2}{3} \Rightarrow a=-8 \end{cases} \Rightarrow \text{اختلاف}=16$$

۲ (۲)

$$\sqrt{\frac{1}{\alpha}}+\sqrt{\frac{1}{\beta}}=5 \xrightarrow{\text{توان ۲}} \frac{1}{\alpha}+\frac{1}{\beta}\ \sqrt{\frac{1}{\alpha\beta}}=\underbrace{\frac{S}{P}+\frac{2}{\sqrt{P}}}=25 \ \cancel{\ldots}$$

$$36x^2-(m+14)x+1=0$$

$$\hookrightarrow \frac{S+2\sqrt{P}}{P}=m+26=25 \rightarrow m=-1$$

$$mx^2+3x+2 \longrightarrow (-1)x^2+3x+2 \Rightarrow P=\frac{c}{a}=\frac{-2}{1}$$

۳ (۲)

معادله درجه اول

$$4x^3+Kx^2-9x-2=0 \longrightarrow (x-\alpha)(x-\beta)\ \square = 4x^3+Kx^2-9x-2=0$$

$$(x^2-Sx+P)\ \square = (x^2-x-2)\ \square = (x-2)(x+1)\ \square = 4x^3+Kx^2-9x-2=0$$

$$\xrightarrow{\text{ریشه}} \begin{cases} -1 \\ 2 \end{cases} \Rightarrow 4(-1)^3+K(1)-9(-1)-2=-4+K+9-2=0 \Rightarrow K=-3$$

۴ (۲)

$$x^2+6x+a=0 \qquad \alpha<\beta<0 \longrightarrow \boxed{\alpha^2>\beta^2>0} \Rightarrow \begin{cases} S=-6 \\ P=a \end{cases}$$

$$3\alpha^2+2\beta^2=12\sqrt{2}+85=2{,}5\alpha^2+0{,}5\alpha^2+2{,}5\beta^2-0{,}5\beta^2=2{,}5(\alpha^2+\beta^2)+0{,}5(\alpha^2-\beta^2)$$

$$=2{,}5(S^2-2P)+0{,}5\left(S\left(\frac{-\sqrt{\Delta}}{|a|}\right)\right)=2{,}5(36-2a)+0{,}5(\sqrt{36-4a})(-6)=12\sqrt{2}+85$$

$$\rightarrow \cancel{90}\ 5-5a-3\sqrt{36-4a}=12\sqrt{2}+\cancel{85} \Rightarrow 5-5a+3\sqrt{36-4a}=12\sqrt{2}$$

$$\longrightarrow a=1$$

۵ (۲)

$$x^4-7x^2-5=0 \xrightarrow{t=x^2} t^2-7t-5=0 \Rightarrow t=\frac{7\pm\sqrt{49+20}}{2} \Rightarrow \begin{cases} t=\frac{7-\sqrt{69}}{2}<0 \ \times \\ t=\frac{7+\sqrt{69}}{2}>0 \ \checkmark \end{cases}$$

$$\boxed{2P^2-3SP+2S}$$

$$\longrightarrow x^2\geq 0 \Rightarrow t\geq 0 \Longrightarrow x \begin{cases} S:\ 0 \ \text{زیرا قرینه‌اند} \\ P:\ \sqrt{\frac{7+\sqrt{69}}{2}}\left(-\sqrt{\frac{7+\sqrt{69}}{2}}\right) \end{cases}$$

$$\longrightarrow P=-\frac{7+\sqrt{69}}{2} \Rightarrow 2\left(-\frac{\sqrt{7+69}}{2}\right)^2-0+0=\boxed{59+7\sqrt{69}}$$

$2x^2 - ax + b = 0$ ⟶ $\begin{cases} S = \frac{a}{2} \\ P = \frac{b}{2} \end{cases}$

$2ax^2 + ax - 6 = 0$ ⟶ $S' = -\frac{1}{2}$, $P' = -3$

$\Rightarrow S = S' + 1 \Rightarrow \frac{a}{2} = -\frac{1}{2} + 1 \Rightarrow a = 1 \Rightarrow 2(1)x^2 + (1)x - 6 = 2x^2 + x - 6$ 6

$\Rightarrow \alpha', \beta' = -2, 1.5 \Rightarrow \alpha, \beta = -1.5, 2 \Rightarrow 2 \times (-1.5) = -3 \Rightarrow b = -6$

$\Rightarrow \left[\frac{ab}{4}\right] = \left[\frac{-6}{4}\right] = -1.5 = -2$

$40\beta^2 + 20\alpha^2 - 20\beta = 20\beta^2 + 20\beta^2 + 20\alpha^2 - 20\beta = 17 \Rightarrow 20(\beta^2 + \alpha^2) + 20(\beta^2 - \beta)$

$ax^2 - ax - b = 0 \longrightarrow a(x^2 - x) = b \rightarrow \beta^2 - \beta = \frac{b}{a}$ $\begin{cases} S = \frac{a}{a} = 1 \\ P = \frac{-b}{a} \end{cases}$

$\Rightarrow 20(S^2 - 2P) + 20\left(\frac{b}{a}\right) = 20\left(1 - \left(-\frac{2b}{a}\right)\right) + 20\frac{b}{a} = 20 + \frac{60b}{a} = 17$ 7

$\Rightarrow \frac{b}{a} = -\frac{3}{60} = \frac{-1}{20} \rightarrow 20b = -a \Rightarrow a = -20b \Rightarrow -20bx^2 + 20bx - b = 0 \xrightarrow{\div b} -x^2 + 20x - 1 = 0$

$\Rightarrow$ اختلاف $= \frac{\sqrt{b^2 - 4ac}}{|a|} = \frac{\sqrt{b^2 - 4ac}}{20} = \frac{\sqrt{320}}{20} = \sqrt{\frac{16}{20}} = \frac{4}{2\sqrt{5}} = \frac{2\sqrt{5}}{5}$

ایده اش را از برادرم گرفتم

$S = a + 1 \rightarrow b' + (b' + 2)$ ⟷ $\begin{cases} P = a \\ P' = b \end{cases}$ ⟶ $(-\frac{1}{2}, 1.5)$ یا $\cancel{(-1.5, \frac{1}{2})}$ و $\frac{a}{2}$

$S' = 3a + 1 \rightarrow \underbrace{a' + (a' + 2)}_{\text{اختلاف 2}}$ ⟶ ج: 1 ، اختلاف = 2 * $(-\frac{1}{2}, 1.5)$ یا $\cancel{(-1.5, \frac{1}{2})}$ و $\frac{3a}{2} = \frac{3}{2}a$ 8

$\Rightarrow \frac{a}{2} - 1.5$, $\frac{a}{2} + 1.5 \Rightarrow P = a = \left(\frac{a+3}{2}\right)\left(\frac{a-1}{2}\right) \Rightarrow a^2 + 2a - 3 = 4a \Rightarrow a^2 - 2a - 3 = 0$

$\Rightarrow (a - 3)(a + 1) = 0 \longrightarrow \begin{cases} a = 3 \longrightarrow x^2 - 4x + 3 \rightarrow (x - 3)(x - 1) \Rightarrow P = 3 \\ a = -1 \longrightarrow x^2 - 1 \Rightarrow x = \pm 1 \Rightarrow -1 \end{cases}$ صحیح نیست

$x^2 - (3a + 1)x + b = 0 \longrightarrow P = b \Rightarrow$ اختلاف $= 3 - b$

$x^2 + x - 1 - m^2 = 0$

$\alpha^2 + \beta^2 = S^2 - 2P = (-1)^2 - 2(-m^2 - 1) = 1 + 2m^2 + 2 = 2m^2 + 3$

$\Rightarrow ext \begin{vmatrix} -\frac{b}{2a} = 0 \\ 2(0) + 3 = 3 \end{vmatrix}$ ⟶ کمترین مقدار ممکن 9

$A(3, y)\ \ B(-5, y) \longrightarrow y_1 = y_2 \Rightarrow \frac{x_1 + x_2}{2} = x_{ext} \Rightarrow x_{ext} = \frac{3 - 5}{2} = -1$ $y_{ext} = 1$

$\longrightarrow ext$ معادله سهمی براساس $= a(x - h)^2 + k = a(x + 1)^2 + 1 \longrightarrow ax^2 + 2ax + a + 1 = 0$

$\longrightarrow \begin{cases} S = \frac{-2a}{a} = -2 \\ P = \frac{a + 1}{a} \end{cases}$ $\alpha^2 + \beta^2 = S^2 - 2P = (-2)^2 - 2\left(\frac{a+1}{a}\right) = 5 \Rightarrow a = \frac{-2}{3}$ 10

$\Rightarrow y = -\frac{2}{3}(x + 1)^2 + 1 \xrightarrow{x = 0} \frac{-2}{3} + 1 = \frac{1}{3}$ ⟶ عرض از مبدأ

ادامه ۸

$$x^{۲} - (۳a+1)x + b = ۰ \xrightarrow{a=۳} x^{۲} - ۱۰x + b = ۰$$

ریشه‌ها α و $\underbrace{\alpha + ۲}_{}$ $\Leftarrow$

دو عدد زوج متوالی

$$S = \alpha + \alpha + ۲ = ۱۰ \rightarrow \alpha = ۴$$

$$P = ۴(۶) = ۲۴$$

اضلاف $= ۲۴ - ۳ = \boxed{۲۱}$