پینا قطاطانی تکلیف ۲۲ چندجمله (مفترانی)

(۱)

$x^2-5x+2=0 \quad S=5 \quad P=2 \to \alpha\beta=2 \to \beta=\frac{2}{\alpha}$

$$\frac{4\alpha+\beta^5}{5\beta^2} \Rightarrow \frac{4\alpha}{5\beta^2}+\frac{\beta^3}{5}=\frac{4\alpha}{\frac{5\alpha 4}{\alpha^2}}+\frac{\beta^3}{5}=\frac{\alpha^3+\beta^3}{5}$$

$$\frac{(\alpha+\beta)^3-3\alpha\beta(\alpha+\beta)}{5}=\frac{125-3\times2\times5}{5}=25-6=\boxed{19}$$

(۲)

$\left[{-3 \atop -4}\right] , \left[{-1.5 \atop -4}\right]$

$$\frac{S}{2}=\frac{-b}{2a}=\frac{3-1.5}{2}=0.75 \to -\frac{b}{2a}=\frac{1.5}{2}$$

$$\Rightarrow \boxed{S=\frac{-b}{a}=1.5}$$

(۳)

$$|\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4k^2-20}}{1}=\frac{4}{3}k$$

$$3\sqrt{k^2-5}=2k \Rightarrow 9(k^2-5)=4k^2 \Rightarrow 5k^2-45=0$$

$$5(k^2-9)=0 \to k^2-9=0 \to \to k^2=9$$

$$\left[\frac{9}{2}\right]=[4.5]=4$$

براکت

$$\frac{-b}{2a} = \frac{3-5}{2} \Rightarrow \frac{-b}{a} = -2 = S \to S(-1,1) \quad ④$$

$$\alpha^2+\beta^2 = S^2-2P = 4-2P = 5 \to 2P = -1 \to P = -\frac{1}{2}$$

$$y = a(x^2 - Sx + P) = a(x^2+2x-\frac{1}{2})$$

$$x=-1 \to a(1-2-\frac{1}{2}) = 1 \to a = -\frac{2}{3} \to y = -\frac{2}{3}(x^2+2x-\frac{1}{2})$$

$$x=0 \to y = -\frac{2}{3}(0+0-\frac{1}{2}) = \frac{1}{3} \Rightarrow c = \frac{1}{3}$$

ریشه‌ها $\to \dfrac{-5\pm\sqrt{25+4m}}{-2} \xrightarrow{\text{ریشه بزرگتر}} \dfrac{-5-\sqrt{25+4m}}{-2} < \dfrac{9}{12}$ ⑤

$$\xrightarrow{\times 2} 5+\sqrt{25+4m} < 9 \to \sqrt{25+4m} < 4$$

$\Delta > 0$ (دو ریشه متمایز) $\Rightarrow 25+4m > 0 \to m > -\dfrac{25}{4}$ $\Bigg\} \to 9$

$$-\frac{25}{4} < m < -\frac{9}{4}$$

۴ مقدار

−۶ و −۵ و −۴ و −۳

۶

$$\frac{-\Delta}{4a} = \frac{-(144 - 20m^2 + 4m)}{4m} = \frac{20m^2 - 4m - 144}{4m}$$

$$= \frac{5m^2 - m - 36}{m} = 2 \longrightarrow 5m^2 - 3m - 36 = 0$$

$$(5m + 12)(m - 3) = 0 \begin{cases} m = 3 \\ m = -\frac{12}{5} \end{cases}$$

$$\Rightarrow m = 3 \longrightarrow y = 3x^2 - 12x + 14 \rightarrow \underbrace{\frac{-b}{2a} = 2}_{\text{محور تقارن سهمی}} \rightarrow \boxed{x = 2}$$

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$$\alpha \xrightarrow{\times q} a \xrightarrow{\times q} \beta \Rightarrow a^2 = \alpha\beta = P$$

$$\alpha\beta = 2a - 1 \rightarrow 2a - 1 = a^2 \rightarrow a^2 - 2a + 1 = 0$$

$$\Rightarrow (a - 1)^2 = 0 \longrightarrow a = 1$$

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$$x^4-7x^2-5=0 \qquad x^2=t$$

$$\Rightarrow t^2-7t-5=0 \rightarrow \Delta=b^2-4ac=69$$

$$t=\frac{7\pm\sqrt{69}}{2} \xrightarrow{t=x^2} x=\sqrt{\frac{7+\sqrt{69}}{2}}\ ,\ x=-\sqrt{\frac{7+\sqrt{69}}{2}}$$

ضرب ریشه‌ها   جمع ریشه‌ها

$$S=0 \qquad P=-\left(\frac{7+\sqrt{69}}{2}\right)$$

$$2P^2-\cancel{3SP}+\cancel{2S}=\frac{2\left(7+\sqrt{69}\right)^2}{4}=\frac{49+69+14\sqrt{69}}{2}=$$

$$\frac{118+14\sqrt{69}}{2}=59+7\sqrt{69}$$

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$$y=kx^2-4x-6 \longrightarrow S\left|\begin{array}{l}\frac{-b}{2a}\\ \frac{-\Delta}{4a}\end{array}\right. \Rightarrow S\left|\begin{array}{l}\frac{2}{k}\\ \frac{-(16+24k)}{4k}\end{array}\right.$$

$$y=-4x-4$$

$$\Rightarrow \left|\begin{array}{l}\frac{2}{k}\\ \frac{-4-6k}{k}\end{array}\right.$$

$$\Rightarrow -4\left(\frac{2}{k}\right)-4=\frac{-4-6k}{k} \Rightarrow \frac{-8-4k}{k}=\frac{-4-6k}{k}$$

$$=\frac{-4+2k}{k}=0 \rightarrow 2k-4=0 \rightarrow k=2 \rightarrow \frac{-4-6k}{k}=\frac{-4-12}{2}=-8$$

$$\left.\begin{array}{l} y = -mx^2 + mx + 1 \\ y = -m - x \end{array}\right\} \Rightarrow -mx^2 + mx + 1 = -m - x$$

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

x تلاقی $\Rightarrow \Delta < 0$

$$(m+1)^2 + 4m(m+1) < 0$$

$$(m+1)\,(m+1+4m) < 0 \Rightarrow (m+1)(5m+1) < 0$$

m		-1		$-\frac{1}{5}$	
y	$+$		$-$		$+$

$$m \in \left(-1, -\frac{1}{5}\right)$$

عدد صحیح ✗