نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۲ کلاس .....

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$x^2-5x+2=0 \Rightarrow \alpha^2-5\alpha+2=0,\ \beta^2-5\beta+2=0 \Rightarrow \alpha^2-5\alpha=\beta^2-5\beta,\ \beta^2=5\beta-2$

$\alpha+\beta=5,\ \alpha\beta=2$

$\frac{2\alpha+\beta^5}{5\beta^2}=\frac{2(5-\beta)+\beta^5}{5\beta^2}=\frac{10-2\beta+\beta^5}{5\beta^2}\rightarrow \frac{\beta(100\beta^3-24)=100\beta^4-24\beta=100(5\beta-2)-24\beta}{5(5\beta-2)}=\frac{476\beta-200}{5(5\beta-2)}=\frac{95(5\beta-2)}{5(5\beta-2)}=19$

$\beta^4=\beta(5\beta-2)=5\beta^2-2\beta=5(5\beta-2)-2\beta=23\beta-10 \quad \beta^5=\beta(23\beta-10)=23\beta^2-10\beta=23(5\beta-2)-10\beta=105\beta-46$

۲

x	$-1/5$	x_5	3
y	-2		-2

$x_5=\frac{3-1/5}{2}=0/7=\frac{x_1+x_4}{2}$

$x_1+x_4=1/5$

۳

$\frac{\sqrt{\Delta}}{|a|}=\frac{3}{4}k \quad \frac{\sqrt{16k^2-20}}{1}=\frac{3}{4}k \quad 16k^2-20=\frac{14}{9}k^2$

$\frac{20}{9}k^2=20 \quad k^2=9$

$\left[\frac{k^2}{2}\right]=4$

۴

$y_5=1 \quad \alpha^2+\beta^2=5$

x	-5	x_5	3
y	y	1	y

$x_5=-1 \hookrightarrow \frac{3-5}{2}=-1$

$\alpha+\beta=-2$

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

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

$x=0 \Rightarrow y=0/5$

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$-x^2+5x+m=0 \quad \Delta>0 \quad 25+4m>0$

$4m>-25 \quad m>\frac{-25}{4}$ ①

α	β	$\frac{9}{4}$
$-$	$+$	$-$

$-\frac{11}{4}+\frac{45}{2}+m<0 \quad \frac{9}{4}+m<0$ ②

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

① و ② $\Rightarrow \frac{-25}{4}<m<\frac{-9}{4}$

$-6/25 \quad -2/25$

$m=\{-6,-5,-4,-3\}$ تعداد ۴ مقدار صحیح

	$y = mx^2 - 12x + 5m - 1$ $\frac{-\Delta}{4m} = 2 \quad \Delta = -8m = 144 - 4m(5m-1)$ $-8m = 144 - 20m^2 + 4m$ کمترین مقدار → ∪ $\quad m > 0$ $20m^2 - 12m - 144 = 0 \quad 5m^2 - 3m - 36 = 0$ $m = \frac{3 \pm \sqrt{9 + 720}}{10}$ (27) → $m = 3$ ✓ ، $m = -2/4$ غ ق ق $x = \frac{-b}{2a} = \frac{12}{6} = 2$ ، $x = 2$	۶
	$x^2 + 2(a+1)x + 2a - 1 = 0 \quad P = \alpha\beta = 2a - 1 = a^2$ $\alpha^2 + 2\alpha(a+1) + 2a - 1 = 0 \quad a^2 - 2a + 1 = 0$ $\beta^2 + 2\beta(a+1) + 2a - 1 = 0 \quad (a-1)^2 = 0$ α, a, β ⟶ هندسی $a^2 = \alpha\beta \quad a = 1$	۷
	$x^4 - 7x^2 - 5 = 0 \quad y = x^2 \quad y^2 - 7y - 5 = 0 \quad y = \frac{7 \pm \sqrt{49 + 20}}{2}$ ($\sqrt{69}$) $y = x^2 = \frac{7 + \sqrt{69}}{2} \Rightarrow x = \pm\sqrt{\frac{7+\sqrt{69}}{2}}$ ، $S = 0$ ، $P = -y$ $2P^2 - 2SP + 2S = 2P^2 = 2y^2 = 2 \times \frac{49 + 69 + 14\sqrt{69}}{4} = \frac{118 + 14\sqrt{69}}{2}$ $= 59 + 7\sqrt{69}$	۸
	$y = kx^2 - 4x - 6 \longrightarrow S\left(\frac{4}{2k}, \frac{-(16 + 24k)}{4k}\right)$ $y = -4x - 4 \longrightarrow -4\left(\frac{4}{2k}\right) - 4 = \frac{-8 - 4k}{k} = \frac{-(4 + 6k)}{k}$ $8 + 4k = 4 + 6k$ $2k = 4 \quad k = 2$ $y_S = -8$	۹
	$-mx^2 + mx + 1 = -m - x$ $-mx^2 + (m+1)x + m + 1 = 0 \longrightarrow \Delta < 0$ $(m+1)^2 + 4m(m+1) < 0$ $m^2 + 1 + 2m + 4m^2 + 4m < 0$ $5m^2 + 6m + 1 < 0$ (جدول تعیین علامت: ریشه‌ها -1 و $\frac{-1}{5}$ ؛ علامت‌ها $+\ -\ +$) $m = -1$ $m = \frac{-1}{5}$ ↳ ج.ع $= \left(-1, \frac{-1}{5}\right)$ ⟶ m شامل عدد صحیح است.	۱۰