نام و نام خانوادگی ...پویا تقی‌بیگی... پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس ...دهم ب...

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

$\beta^3=\beta(\beta^2)=\beta(5\beta-2)=5\beta^2-2\beta=23\beta-10$

$\alpha+\beta=5$

$\alpha\beta=2 \Rightarrow \alpha=\frac{2}{\beta} \Rightarrow 4\alpha=\frac{8}{\beta}=4(5-\beta)=20-4\beta$

$\beta^5=\beta(\beta^4)=\beta(\beta^2)^2=\beta(25\beta^2-20\beta+4)=25\beta^3-20\beta^2+4\beta=575\beta-250-100\beta+40+4\beta=479\beta-210$

$\frac{20-4\beta+479\beta-210}{5\beta^2}=\frac{475\beta-190}{5(5\beta-2)}=\frac{95}{5}=19$

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نقاط هم عرض پس طول راسشان برابر میانگین طول‌ها ←

$x_s=\frac{3+(-1.5)}{2}=0.75=\frac{-b}{2a}$

$\alpha+\beta=\frac{-b}{a}=2\times0.75=1.5$

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$x^2+2kx+5=0 \qquad |\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{4}{3}k \Rightarrow \sqrt{4k^2-20}=\frac{4}{3}k$

$\Rightarrow 4k^2-20=\frac{16}{9}k^2 \Rightarrow \frac{20}{9}k^2=20 \Rightarrow k^2=9 \Rightarrow \begin{cases} k=3 \\ k=-3 \end{cases}$

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

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$\left.\begin{array}{l} A:(3,y) \\ B:(-5,y) \end{array}\right\} \xrightarrow{\text{هم عرض}} x_s=\frac{3+(-5)}{2}=-1$ ، $y_s=1$ ، راس: $(-1,1)$

$y=a\left(x+\frac{b}{2a}\right)^2-\frac{\Delta}{4a} \Rightarrow y=a(x+1)^2+1$

$y=0 \rightarrow 0=a(x+1)^2+1 \Rightarrow a(x+1)^2=-1 \Rightarrow (x+1)^2=\frac{-1}{a} \Rightarrow \begin{cases} \alpha=-1+\sqrt{\frac{-1}{a}} \\ \beta=-1-\sqrt{\frac{-1}{a}} \end{cases}$

$\alpha^2+\beta^2=5 \Rightarrow (\alpha+\beta)^2-2\alpha\beta=5$ ، $\alpha+\beta=-2$

$4-2\alpha\beta=5 \Rightarrow 2\alpha\beta=-1 \Rightarrow \alpha\beta=\frac{-1}{2}=1+\frac{1}{a} \Rightarrow \frac{1}{a}=\frac{-3}{2} \Rightarrow a=\frac{-2}{3}$

$x=0 \rightarrow y=\frac{-2}{3}(0+1)^2+1=\frac{1}{3} \rightarrow$ نقطه $\left(0,\frac{1}{3}\right)$

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$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a} \xrightarrow{x<\frac{9}{2}} \frac{-5\pm\sqrt{25+4m}}{-2}<\frac{9}{2} \Rightarrow \sqrt{25+4m}<4 \Rightarrow 0\leq 25+4m<16$

$\Rightarrow -25\leq 4m<-9 \Rightarrow -6.25\leq m<-2.25 \xrightarrow{m\in\mathbb{Z}} m\in\{-6,-5,-4,-3\}$

۴ مقدار صحیح

$y = mx^2 - 12x + 5m - 1 \quad m > 0 \quad y_{min} = 2 \qquad x_s = \frac{-b}{2a} = \frac{12}{2m} = \frac{6}{m}$ $\Rightarrow 2 = m(\frac{6}{m})^2 - 12(\frac{6}{m}) + 5m - 1 = -\frac{36}{m} + 5m - 1 \Rightarrow 5m - 3 - \frac{36}{m} = 0 \quad \times m)$ $\Rightarrow 5m^2 - 3m - 36 = 0 \Rightarrow m = \frac{3 \pm \sqrt{9+720}}{10} \Rightarrow m = 3 \checkmark \Rightarrow x_s = \frac{6}{3} = 2$ $m = -\frac{12}{5} \times$	۶
$x^2 - 2(a+1)x + 2a - 1 = 0 \rightarrow$ ریشه‌ها: $\alpha, \beta \rightarrow \alpha, a, \beta$ (واسطه هندسی) $\rightarrow a^2 = \alpha\beta$ $\alpha\beta = \frac{c}{a} = \frac{2a-1}{1} = 2a - 1 \rightarrow 2a - 1 = a^2 \Rightarrow a^2 - 2a + 1 = 0 \Rightarrow a = 1$	۷
$x^4 - 7x^2 - 5 = 0 \rightarrow t^2 - 7t - 5 = 0 \rightarrow t = \frac{7 \pm \sqrt{69}}{2}$ → $t = \frac{7+\sqrt{69}}{2} \checkmark$, → $t = \frac{7-\sqrt{69}}{2} \times$ غ ق ق $x = \pm\sqrt{t} = \pm\sqrt{\frac{7+\sqrt{69}}{2}} \rightarrow S = 0$ $P = (\sqrt{t}).(-\sqrt{t}) = -t = \frac{-7-\sqrt{69}}{2}$ $2P^2 - \underbrace{3SP + 2S}_{0} = 2P^2 = 2(-(\frac{7+\sqrt{69}}{2}))^2 = \frac{118+14\sqrt{69}}{2} = 59 + 7\sqrt{69}$	۸
$y = Kx^2 - 4x - 6 \qquad x_s = \frac{-b}{2a} = \frac{2}{K}$ $y_s = K(\frac{2}{K})^2 - 4(\frac{2}{K}) - 6 = -\frac{4}{K} - 6 \qquad y_{خط} = -4x - 4 = -4(\frac{2}{K}) - 4 = \frac{-8}{K} - 4$ $\underline{y_{خط} = y_s} \Rightarrow \frac{-8}{K} - 4 = -6 - \frac{4}{K} \Rightarrow -\frac{4}{K} = -2 \Rightarrow K = 2$ $y_s = -\frac{4}{K} - 6 = -\frac{4}{2} - 6 = -8$	۹
$y = -mx^2 + mx + 1 \quad y = -m - x$ قطع نکند $\rightarrow -mx^2 + (m+1)x + 1 + m = 0$ $\underline{\Delta < 0} \Rightarrow m^2 + 2m + 1 + 4m^2 + 4m < 0 \Rightarrow 5m^2 + 6m + 1 < 0 \Rightarrow (m+1)(5m+1) < 0$ $-1 \quad -\frac{1}{5}$: $+ \quad - \quad +$ $\Rightarrow m \in (-1, -\frac{1}{5}) \rightarrow$ ۰ عدد صحیح	۱۰