

مقدار $\frac{2\alpha + \beta^2}{5\beta^2}$ ؟

$$\begin{aligned} x^2 - 5x + 2 &= 0 \rightarrow \alpha^2 = 5\alpha - 2 \\ \alpha + \beta &= 5 \rightarrow \beta^2 = 5\beta - 2 \quad (*) \rightarrow 2\alpha = 2(5 - \beta) = 10 - 2\beta \\ \alpha\beta &= 2 \rightarrow \alpha = \frac{2}{\beta} \rightarrow 2\alpha = \frac{4}{\beta} \quad \beta^2 = \beta(\beta^2) = \beta(5\beta - 2) = 5\beta^2 - 2\beta = 23\beta - 10 \\ \beta^2 &= \beta(\beta^2) = \beta((5\beta - 2)^2) = \beta(25\beta^2 - 20\beta + 4) = 25\beta^3 - 20\beta^2 + 4\beta = \\ 25(23\beta - 10) - 20(5\beta - 2) + 4\beta &= 479\beta - 210 \\ \frac{479\beta - 210}{5\beta^2} &= \frac{(20 - 4\beta)(479\beta - 210)}{5\beta^2} = \frac{475\beta - 190}{5\beta^2} = \frac{95(5\beta - 2)}{5\beta^2} = \frac{19}{\beta} \end{aligned}$$

نقاط هم عرض هستند پس γ یا طول رأس پس برابر میانگین طول هاست یعنی:

$$\frac{2 + (-1,5)}{2} = 0,25 \rightarrow \gamma = 0,25 \rightarrow \frac{\alpha + \beta}{2} = 0,25 \rightarrow \alpha + \beta = 0,5$$

مقدار $[\frac{K^2}{2}]$ ؟

$$\begin{aligned} x^2 + 2Kx + 5 &= 0 \rightarrow \begin{cases} a=1 \\ b=2K \\ c=5 \end{cases} \quad |\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4K^2 - 20}}{1} = \sqrt{4K^2 - 20} = \frac{K}{3} \\ K^2 - 20 &= \frac{1}{9} K^2 \\ \frac{8}{9} K^2 &= 20 \rightarrow K^2 = 22,5 \rightarrow K = \pm 4,74 \end{aligned}$$

$$[\frac{K^2}{2}] = [\frac{9}{2}] = [4,5] = (4)$$

مختصات: $(-1, 1)$

$$\begin{aligned} A: (2, y) \\ B: (-5, y) \end{aligned} \rightarrow \gamma = \frac{2 + (-5)}{2} = -1,5 \rightarrow y = 1$$

$$y = a(n-h)^2 + k \rightarrow y = a(n+1)^2 + 1$$

$$\begin{aligned} y=0 &\rightarrow 0 = a(n+1)^2 + 1 \rightarrow a(n+1)^2 = -1 \rightarrow (n+1)^2 = -\frac{1}{a} \rightarrow \alpha = -1 + \sqrt{-\frac{1}{a}} \\ n=0 &\rightarrow y = a(0+1)^2 + 1 = \frac{1}{3} + 1 = \frac{4}{3} \rightarrow \beta = -1 - \sqrt{-\frac{1}{a}} \end{aligned}$$

جواب: $(0, \frac{1}{3})$ نقطه!

$-x^2 + 5x + m = 0$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{-5 \pm \sqrt{25 + 4m}}{-2} < \frac{9}{2} \rightarrow \pm \sqrt{25 + 4m} < 4$$

$$0 < 25 + 4m < 16 \rightarrow -25 < 4m < -9 \rightarrow -6,25 < m < -2,25$$

مقدار صحیح m ؟ $m \in \{-4, -5, -3\}$ مقدار صحیح m را بنویس

$$a=m \quad b=-12$$

$$y = mn^2 - 12n + 5m - 1 \rightarrow n_s = -\frac{b}{2a} = \frac{12}{2m} = \frac{6}{m}$$

$$y_{\min} = 2 \rightarrow y_{\min} = a\left(-\frac{b}{2a}\right)^2 + b\left(-\frac{b}{2a}\right) + c \rightarrow y_{\min} = m\left(\frac{6}{m}\right)^2 - 12 \cdot \frac{6}{m} + 5m - 1$$

$$\checkmark \boxed{n_s = 2} \leftarrow m = 3$$

$$\text{و اما } \boxed{n_s = -\frac{6}{2}} \leftarrow m = -\frac{12}{\Delta}$$

$$y_{\min} = -\frac{36}{m} + 5m - 1$$

$$y_{\min} = 2 \rightarrow 2 = -\frac{36}{m} + 5m - 1$$

$$-\frac{36}{m} + 5m - 3 = 0 \xrightarrow{\times m} -36 + 5m^2 - 3m = 0 \quad m=0$$

$$n^2 + 2(a+1)n + 2a - 1 = 0 \rightarrow \alpha, \beta$$

به ازای کدام مقدار a ، α, β تشکیل دنباله هندسی می دهند: یعنی $a^2 = \alpha\beta$

$$\alpha\beta = \frac{c}{a} = 2a - 1 \rightarrow 2a - 1 = a^2 \rightarrow a^2 - 2a + 1 = 0$$

$$(a-1)^2 = 0 \rightarrow a = 1$$

$$\xrightarrow{\text{بازنویسی مجدد}} n^2 + 2(1+1)n + 2(1) - 1 \rightarrow n^2 + 4n + 1 = 0 \rightarrow \alpha = -2 + \sqrt{3}, \beta = -2 - \sqrt{3}$$

$$n^2 - \sqrt{m}n - 5 = 0 \rightarrow t^2 - \sqrt{m}t - 5 = 0 \rightarrow t = \frac{\sqrt{m} \pm \sqrt{m^2 + 20}}{2}$$

$$n = \frac{\sqrt{m} \pm \sqrt{m^2 + 20}}{2}$$

$$n = \pm \sqrt{\frac{m^2 + 20}{4}} \rightarrow s = 0$$

$$P = \sqrt{t} \cdot (-\sqrt{t}) = -t \rightarrow -t = -\frac{\sqrt{m}}{2} \rightarrow P = \frac{\sqrt{m}}{2}$$

$$2P^2 - 3SP + 2S = 2P^2 = \frac{1}{2} \left(\frac{m}{4} + 15\sqrt{m} + 20 \right) = \frac{11m + 15\sqrt{m}}{2} = 59 + 7\sqrt{49}$$

$$y = kn^2 - kn - 7 \rightarrow y = -kn - 7 \rightarrow n_s = -\frac{b}{2a} = \frac{k}{2k} = \frac{1}{2}$$

$$y_s = k\left(\frac{1}{2}\right)^2 - k\left(\frac{1}{2}\right) - 7 = \frac{k}{4} - \frac{k}{2} - 7 = -\frac{k}{4} - 7$$

$$y_{\text{قط}} = -kn - 7 = -k\left(\frac{1}{2}\right) - 7 = -\frac{k}{2} - 7 \xrightarrow{y_s = y_{\text{قط}}} -\frac{k}{4} - 7 = -\frac{k}{2} - 7 \rightarrow -\frac{k}{4} = -\frac{k}{2} \rightarrow k = 0$$

$$y_s = -\frac{k}{4} - 7 = -\frac{k}{2} - 7 = (-1)$$

$$-mn^2 + mn + 1 = -m - n \rightarrow -mn^2 + (m+1)n + m+1 = 0 \quad \Delta < 0$$

$$-mn^2 + (m+1)n + m+1 = 0 \rightarrow (m+1)^2 + 4m(m+1) < 0 \rightarrow 5m^2 + 4m + 1 < 0$$

$$(m+1)(5m+1) < 0 \rightarrow m = -\frac{1}{5}$$

$$m^2 + 2m + 1 + km^2 + km = 5m^2 + 4m + 1$$

$$-1 < m < -\frac{1}{5}$$

$$\frac{-1}{5} < m < -1 \rightarrow m \in (-1, -\frac{1}{5})$$