

$$y = (a-1)x^2 + x + c$$

در صورت $x=2 \rightarrow \frac{-b}{2a} = 2 \rightarrow \frac{-1}{2(a-1)} = 2 \rightarrow 2a-1=1 \rightarrow 2a=2 \rightarrow a=1$

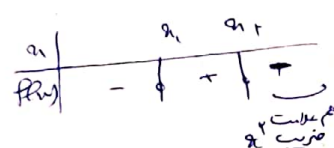
$$y = \frac{1}{4}x^2 + x + c$$

$$\frac{1}{4}x^2 + x + c = 0 \rightarrow x^2 + 4x + 4c = 0$$

در این طول متغیر $n=2$

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$$f(x) = mx^2 - 2x + m$$



$$\frac{1}{f} \rightarrow \frac{1}{m} > \frac{1}{f} \rightarrow \frac{1}{m} > \frac{1}{f}$$

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$$S = \frac{c-\sqrt{a}}{r} + \frac{c+\sqrt{a}}{r} = \frac{2c}{r}$$

$$P = \left(\frac{c-\sqrt{a}}{r}\right)\left(\frac{c+\sqrt{a}}{r}\right) = \frac{c^2-a}{r^2}$$

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

$$4x^2 - 11x + 1$$

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$$2x^2 - 11x + m + 1 = 0$$

$$\alpha + \beta = \frac{-b}{a} = \frac{11}{2} = 5.5$$

$$\alpha\beta = \frac{c}{a} = \frac{m+1}{2}$$

$$12x^2 + 5x - 1 = 0 \rightarrow 12x^2 + 5x - 1 = 0 \rightarrow (4x-1)(3x+1) = 0$$

$$= 12x^2 + 5x - 1 = 0 \rightarrow 12x^2 + 5x - 1 = 0 \rightarrow (4x-1)(3x+1) = 0$$

$$\rightarrow m^2 - 11m + 1 = 0$$

$$= (m-1)(m-1) = 0 \rightarrow m = 1$$

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$$S(x, y) \rightarrow y = a(x-h)^2 + k = a(x-2)^2 + 9 \rightarrow a(x-2)^2 + 9 = 0 \rightarrow a(x-2)^2 = -9$$

$$\Rightarrow y = -1(x-2)^2 + 9 = -x^2 + 4x - 4 + 9 = -x^2 + 4x + 5$$

$$-x^2 + 4x + 5 > 0 \rightarrow x^2 - 4x - 5 < 0 \rightarrow (x-5)(x+1) < 0$$

$$\frac{-1}{2} < x < \frac{5}{2} \rightarrow x \in (-1, 5)$$

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$$\alpha^2 - V\alpha + 9/5 = 0$$

$$\alpha/\beta = \frac{9/5}{\alpha} \Rightarrow \alpha^2 = 9 \rightarrow \alpha = \pm 3$$

$$\alpha + \beta = \frac{V}{\alpha} \quad \begin{cases} \alpha = 3 \rightarrow \beta = \frac{V}{3} \\ \alpha = -3 \rightarrow \beta = -\frac{V}{3} \end{cases}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{-3} + \frac{1}{\frac{V}{3}} = \frac{1}{-3} + \frac{3}{V} = \frac{-1+9}{V} = \frac{8}{V}$$

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$$\alpha^2 + m\alpha - 1 = 0 \Rightarrow \alpha^2 + m\alpha - 1 = 0 \quad \alpha + \beta = \frac{-b}{a} = -m$$

$$\alpha^2 - m\beta = 1$$

$$\hookrightarrow m - m\alpha - m\beta = 1 \rightarrow m - m(\alpha + \beta) = 1 \rightarrow m - m(-m) = 1 \rightarrow m + m^2 = 1$$

$$m^2 + m - 1 = 0 \rightarrow m = \frac{-1 \pm \sqrt{5}}{2}$$

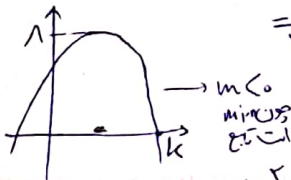
$$\frac{-1 \pm \sqrt{5}}{2}$$

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

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V

$$f(x) = m\alpha^2 + k\alpha + \frac{m}{\alpha} + V$$



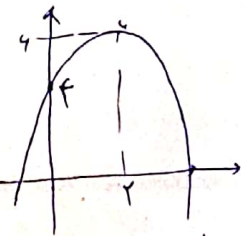
$$\frac{\Delta}{4a} = 1 \rightarrow \frac{-(14 - f(\frac{m}{\alpha} + V)(m))}{m} = 1 \rightarrow m^2 + 14m - 14 = 14m$$

$$f(x) = -\alpha^2 + k\alpha + 4$$

$$-\alpha^2 + k\alpha + 4 = 0 \rightarrow \alpha^2 - k\alpha - 4 = 0$$

$$m^2 + 14m - 14 = 14m \rightarrow m^2 - 14 = 0 \rightarrow m = \pm \sqrt{14}$$

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$$f(x) = a(n-h)^2 + k = a(n-1)^2 + 4 \Rightarrow 4a + 4 = k \rightarrow a = \frac{k-4}{4}$$

$$f(x) = \frac{1}{4}(n-1)^2 + 4 = \frac{n^2}{4} - \frac{n}{2} + 1 + 4 = \frac{n^2}{4} - \frac{n}{2} + 5$$

$$\frac{n^2}{4} - \frac{n}{2} + 5 = 0 \rightarrow \alpha + \beta = \frac{-b}{a} = \frac{1}{2}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{1/2}{-1} = -\frac{1}{2}$$

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$$\alpha^2 - (a+c)\alpha + (ca + 4a + c) = 0 \Rightarrow \alpha^2 - 12\alpha - 1 + 4\alpha + 4 + c = 0$$

$$\rightarrow \alpha^2 - 8\alpha - 1 = 0$$

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$$\alpha = \frac{8 \pm \sqrt{64 + 4}}{2} = \frac{8 \pm \sqrt{68}}{2}$$

$$\alpha^2 - 12\alpha - 1 = 0$$

$$\hookrightarrow (n-1)(n-4) = 0 \rightarrow n = 1, 4$$

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