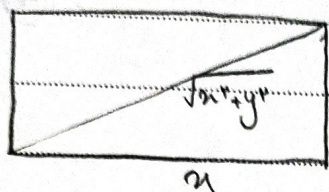


$$\frac{L}{w} = \frac{d}{f} \rightarrow L = d n, w = f n \rightarrow S = 2 a n^2$$

$$\begin{aligned} \frac{L'}{f n + w} = \frac{\sqrt{d} + 1}{f} &\Rightarrow L' = f n (\sqrt{d} + 1) \rightarrow S' = 2 a n^2 (\sqrt{d} + 1) \\ \frac{S'}{S} = \frac{2 a n^2 (\sqrt{d} + 1)}{2 a n^2} &= \frac{2 (\sqrt{d} + 1)}{d} \end{aligned}$$



$$\begin{aligned} \frac{\sqrt{n^2 + y^2}}{y} = \frac{\sqrt{d} + 1}{f} &\rightarrow \frac{n^2 + y^2}{y^2} = \frac{4 + 2\sqrt{d}}{f} \\ \frac{n^2}{y^2} + 1 = \frac{4 + \sqrt{d}}{2} &\rightarrow \frac{y^2}{n^2} = \frac{2}{1 + \sqrt{d}} \rightarrow \frac{y^2}{n^2} = \frac{\sqrt{d} - 1}{2} \end{aligned}$$

$$\begin{aligned} \sqrt{4a^2 + 4a} = 2 - 4a &\rightarrow 4a^2 + 4a = 4a^2 + 4 - 16a \rightarrow \\ 4a^2 - 14a + 4 = 0 &\rightarrow a^2 - 14a + 11 = 0 \rightarrow (a - 14)(a - 1) = 0 \rightarrow \\ a = 1 \text{ و } 14, a = \frac{2}{v} &\rightarrow \frac{a+1}{a} = \frac{9}{\frac{2}{v}} = \frac{9}{2} \end{aligned}$$

برای راحتی در حساب

$$\sqrt{n-1} \leq t \rightarrow \frac{\sqrt{n-1}}{t+2} = \frac{\sqrt{n-1}}{2-t} = \frac{n-1}{t} \rightarrow \frac{3\sqrt{n-1} - \sqrt{n-1} - 2\sqrt{n-1}}{1-n}$$

$$\rightarrow \frac{-2\sqrt{n-1}}{1-n} = \frac{n-1}{t} \rightarrow -2\sqrt{n-1} (t) = \frac{t^2}{n-1} (1-n)$$

$$\rightarrow -2\sqrt{n-1} = 1-n \xrightarrow{n \geq 10} f(n) \leq n^2 + 100 - 20n \rightarrow$$

$$n^2 - 20n + 100 \leq 0 \rightarrow n = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow n = 10 \pm 4\sqrt{3} \quad n \geq 10$$

$$\sqrt{2-n} \leq t \rightarrow \frac{1}{t+2} = \frac{1}{2-t} = \frac{t^2}{2-t} \rightarrow \frac{-t}{t-2} = \frac{t}{2} \rightarrow$$

$$-10 = 2 - t^2 \rightarrow t^2 - 12 = 0 \rightarrow n = 12 \rightarrow$$

$$x = \omega + t \rightarrow \frac{1}{(\omega + t)^2} + \frac{1}{(\omega - t)^2} = \frac{14}{9} \rightarrow \quad (9)$$

$$\frac{0,1\omega + t^2}{(0,1\omega - t^2)^2} \rightarrow \frac{1(0,1\omega + t^2)}{(0,1\omega - t^2)^2} = \frac{14}{9} \rightarrow$$

$$31\omega t^2 - 194t^2 + 11 = 0 \rightarrow 11t^2 - 194t + 11 = 0 \rightarrow t = \frac{194 \pm 184}{22} \rightarrow$$

$$t = \frac{1}{14}, t = \frac{11}{10} \rightarrow t \leq \frac{1}{14}, t \leq \sqrt{\frac{11}{10}} \rightarrow x = \omega + t \quad (5)$$

$$x \leq \frac{1}{14}, x \leq \frac{11}{10}, x = \sqrt{\frac{11}{10}} + \frac{1}{14}, x = -\sqrt{\frac{11}{10}} + \frac{1}{14} \rightarrow$$

$$\frac{1}{14} + \frac{11}{10} + \sqrt{\frac{11}{10}} + \frac{1}{14} - \sqrt{\frac{11}{10}} + \frac{1}{14} = 1$$

$$\text{مستقيمات} \rightarrow \text{①} -x^2 + 4x + 1 > 0 \rightarrow -(x-2)(x-3) > 0 \quad (V)$$

$$\text{فاصله} \rightarrow \begin{array}{c} -\infty \quad 2 \quad 3 \quad \infty \\ + \quad - \quad + \quad - \end{array} \rightarrow x \in (-\infty, 2] \cup [3, \infty)$$

$$-x^2 + 4x - 1 > 0 \rightarrow \text{②} -(x-2)(x-3) > 0 \rightarrow \begin{array}{c} 2 \quad 3 \\ - \quad + \quad - \end{array} \rightarrow x \in [2, 3] \quad (5)$$

$$\text{① و ②} \quad x = 2 \rightarrow \sqrt{4+0} + \sqrt{14+0} = 2+2 \checkmark \rightarrow x \leq 2 \rightarrow \text{جواب}$$

$$y \leq \frac{14-x}{10} \rightarrow \frac{14-x}{10} = |m+1| + |m-1| \quad x \geq 1 \rightarrow 14-x = 10(m+1) \quad (1)$$

$$\rightarrow 14-x = 10 \rightarrow m \leq 1 \rightarrow y = 0, x \leq -1 \rightarrow 10(-m-1) = 14-x$$

$$\rightarrow x = -1, y = \frac{A(1,0)}{B(-1,1)} \rightarrow AB = \sqrt{(1+1)^2 + (0-1)^2} = \sqrt{2}$$

Arman

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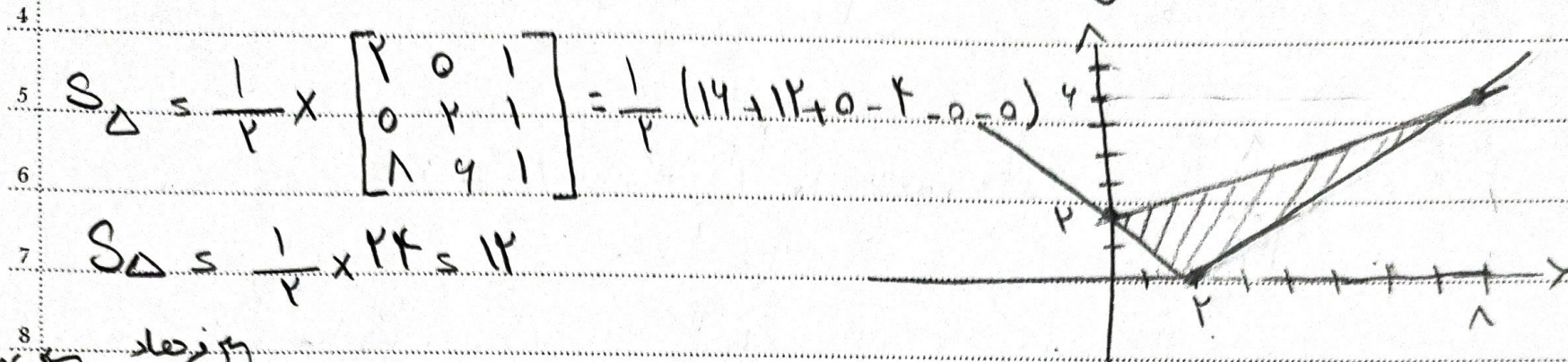
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$$1 \quad \sqrt{2P - Km + K} \leq \sqrt{(n - P)^P} \leq |n - P|, \quad |n - P| = \frac{1}{P} n + P \rightarrow \quad (9)$$

$$2 \quad \rightarrow n - P \leq \frac{1}{P} n + P \rightarrow \frac{1}{P} n \leq P \rightarrow n \leq 1, \quad y \leq 9$$

$$3 \quad \rightarrow n - P \leq -\frac{1}{P} n + P \rightarrow \frac{P}{P} n = 0 \rightarrow n = 0, \quad y \leq P \quad (r)$$



8 $\rightarrow$ $\frac{1}{n} + \frac{1}{y} \leq \frac{1}{P_0}$

$$9 \quad x = y - 9 \xrightarrow{\text{put}} \frac{1}{n} + \frac{1}{y} \leq \frac{1}{P_0} \rightarrow \frac{1}{n} + \frac{1}{n+9} \leq \frac{1}{P_0} \quad (10)$$

$$11 \quad \frac{n+9+n}{(n+9)n} \leq \frac{1}{P_0} \rightarrow P_0 n + 110 \leq nP + 9n \rightarrow nP - Pn - 110 \rightarrow$$

$$12 \quad \rightarrow (x - P_0)(n + 9) = 0 \xrightarrow{\text{put}} \underline{x = P_0}$$

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