

مراح = فاصله $\rightarrow$ دو راس مجاور $A \rightarrow (-2, 4) \quad B \rightarrow (4, m)$
 $-2(-\frac{1}{4}) + m = +1 + m \quad f(-\frac{1}{4}) + m = -2 + m$

فاصله $= \sqrt{4^2 + (-2 + m - m)^2} = \sqrt{16 + 0} = \sqrt{16}$

$\rightarrow S = (\sqrt{16})^2 = 16$

فاصله $\rightarrow \sqrt{9 + 16} = 5 \rightarrow 25 = (2m+1)^2 + (3)^2 \rightarrow m = \frac{4}{3} / -\frac{4}{3}$
 قطری $AC^2 = BD^2 \rightarrow (m+1)^2 + (y-4)^2 = (m+4)^2 + (y+2)^2$
 $\rightarrow -4m - 12y = 3 \rightarrow 2m + 4y = -1 \quad m = \frac{4}{3}, y = -1$
 $\rightarrow m = -\frac{4}{3}, y = 1$
 نقطه وسط $\rightarrow$ حالت ۱ $= \frac{3}{-4}$ شیب ۲ $= \frac{-3}{4} \checkmark$ حالت ۲ $\rightarrow$
 $\rightarrow m = \frac{4}{3}, y = -1 \rightarrow BC = \sqrt{(\frac{4}{3}-2)^2 + (-1-1)^2} = \sqrt{\frac{4}{9} + 4} = \sqrt{\frac{40}{9}} = \frac{2\sqrt{10}}{3}$
 $\rightarrow AB = 5 \rightarrow$ نصف محیط $= \frac{1}{2} \Delta \rightarrow$ $\Delta = 10$

$2mx + (m^2 - 1)y = 2 \rightarrow$ شیب $= \frac{-2m}{m^2 - 1} = \tan 45^\circ$
 $\rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \rightarrow \Delta = 4 + 12 > 0$
 اختلاف ریشه $= \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{16}}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$

$A(1, 9) \quad B(3, 2) \quad C(7, 11) \rightarrow 2x - 3$
 شیب $BC \rightarrow \frac{2-11}{3-7} = 2 \rightarrow$ شیب $AH = -\frac{1}{2}$
 $\rightarrow -\frac{1}{2}x + k \xrightarrow{(1, 9)} -\frac{1}{2} + k = 9 \rightarrow k = \frac{19}{2} \rightarrow y = -\frac{1}{2}x + \frac{19}{2}$
 تلاقی $\rightarrow -\frac{1}{2}x + \frac{19}{2} = \frac{2}{3}x - 1 \rightarrow x = 5, y = 7$
 فاصله $\rightarrow \sqrt{(\frac{5-1}{2})^2 + (\frac{7-9}{2})^2} = \sqrt{20} = 2\sqrt{5}$

$AC \rightarrow 4y - 2x = 14 \rightarrow y = \frac{3}{2}x + \frac{7}{2}$ شیب $BC = -\frac{4}{3}$
 $B \rightarrow BC \rightarrow 2y - 7x = -19 \rightarrow y = \frac{7}{2}x - \frac{19}{2}$
 $AB \rightarrow y + 2x = 7 \rightarrow y = -2x + 7$
 $\rightarrow -\frac{3}{2}x + k \xrightarrow{(5, 1)} -\frac{15}{2} + k = 1 \rightarrow k = \frac{17}{2} \rightarrow -\frac{3}{2}x + \frac{17}{2}$
 تلاقی $\rightarrow -\frac{3}{2}x + \frac{17}{2} = \frac{7}{2}x - \frac{19}{2} \rightarrow x = \frac{9}{5}, y = \frac{11}{5}$

فاصله $\rightarrow$ نقطه از خط عم و عمود بر خط $\rightarrow \frac{|1 - \frac{3}{2}(\frac{9}{5}) + 1 - \frac{17}{2}|}{\sqrt{1 + \frac{9}{14}}} = \frac{12}{5} = 2.4$

$$\text{شیب} = \frac{-4-0}{0+\frac{2}{3}} = \frac{-4}{\frac{2}{3}} = -\frac{2 \cdot 3}{1} = -6 \rightarrow -6x-4$$

$$\rightarrow \text{نقطه } A \rightarrow \text{روی خط} \rightarrow (x, x) \text{ یا } (x, -6x-4)$$

$$\rightarrow x = -6x-4 \rightarrow 7x = -4 \rightarrow x = -\frac{4}{7} = \text{ضلع} = \frac{4}{7}$$

$$\rightarrow \text{قطر} = \text{ضلع} \sqrt{2} = \frac{4\sqrt{2}}{7}$$

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$$\text{شیب} \rightarrow \frac{1}{a} = a \rightarrow a^2 = 1 \rightarrow a = \pm 1 \begin{cases} a=1 \rightarrow y=x+1 \\ a=-1 \end{cases}$$

$$\left(\begin{matrix} y=x+1 \\ y=x \end{matrix} \right) \text{ فاصله} = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \xrightarrow{\text{قطر}} \frac{2}{\sqrt{2}} = \frac{1}{\sqrt{2}} + x^2$$

$$\rightarrow x = \frac{1}{\sqrt{2}} = \text{ضلع} \rightarrow \text{طول} = \frac{1}{\sqrt{2}} \rightarrow S = \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{1}{2} = \frac{1}{2}$$

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$$y = \frac{x}{3} - \frac{1}{3} \xrightarrow{\text{مورد}} y = -2x + k \xrightarrow{(4,0)} y = -2x + 12$$

$$\rightarrow -2x + 12 = \frac{x}{3} - \frac{1}{3} \rightarrow \frac{10}{3}x = \frac{37}{3} \rightarrow x = 3.7 \quad y = 0.9$$

راس سوم باید حتماً طرف جهت موردار n ها باشد چون اگر به خلافش باشد نقطه داده شده درون مثلث قرار نمی گیرد و چون گفته مساحت را بیست کنیم پس راس سوم روی محور y است.

$$\frac{x}{3} - \frac{1}{3} = 0 \rightarrow x = 1 \quad y = 0 \quad \text{فاصله} = \sqrt{2.7^2 + 0.9^2} = \sqrt{0.9^2(9+1)} = \sqrt{10} \times 0.9$$

$$\text{چون مورد است} \rightarrow S = \frac{1}{2} \times 0.9 \times 10 \times \frac{3}{10} = \frac{1}{2} \times 0.9 \times 3 = 1.35$$

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$$\text{شیب} = \sqrt{3} \begin{cases} A \rightarrow -\frac{1}{\sqrt{3}}x + k \\ B \rightarrow -\frac{1}{\sqrt{3}}x + k \end{cases} \text{ فاصله} = \sqrt{\left(\frac{1}{\sqrt{3}}\right)^2 + \left(\frac{\sqrt{3}}{\sqrt{3}}\right)^2}$$

$$\rightarrow = \sqrt{\frac{1}{3} + \frac{3}{3}} = \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \text{ضلع}$$

$$\rightarrow \text{قطر} = \text{ضلع} \sqrt{2} = \frac{\sqrt{2}}{\sqrt{3}}$$

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$$\text{فاصله مرکز تا نقطه} = \text{شعاع} = \sqrt{25} = 5 \quad \text{شیب} = \frac{-4}{-3} = \frac{4}{3} \xrightarrow{(0,0)} y = \frac{4}{3}x$$

$$\text{شعاع} = 5 \quad y' = \frac{4}{3}x + k \xrightarrow{\text{فاصله دایره}} \Delta = \frac{|k|}{\sqrt{1+\frac{16}{9}}} = 5 \rightarrow |k| = \frac{25}{3}$$

$$\text{چون خط به بالا رفته پس } k = \frac{25}{3} \rightarrow y' = \frac{4}{3}x + \frac{25}{3} \quad \text{خط ادویه} = -\frac{4}{3}x + n$$

$$\text{تقاطع} \rightarrow -\frac{4}{3}x - \frac{25}{3} = \frac{4}{3}x + \frac{25}{3} \rightarrow -\frac{4}{3}x - \frac{25}{3} = \frac{4}{3}x + \frac{25}{3}$$

$$\rightarrow \frac{4}{3}x = -\frac{50}{3} \rightarrow x = -5 \quad y = -1 \rightarrow xy = 5$$

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