

$$A(-2, K)$$

$$B(4, u)$$

$$u = -\frac{1}{2}$$

$$\text{نسب خط} = \frac{u - K}{4 - (-2)} = -\frac{1}{2} \rightarrow u - K = -3$$

(1)

$$\Rightarrow S = (AB)^2 \rightarrow (4 - (-2))^2 + (u - K)^2 = 36 + 9 = 45$$

$$A(-1, 4)$$

$$C(u, v)$$

$$B(3, 1)$$

$$D(-1 - u, v + 3)$$

(2)

$$\Rightarrow AB = B - A = (3 - (-1), 1 - 4) = (4, -3)$$

$$BC = (u - 3, v - 1) \rightarrow (4, -3) + (u - 3, v - 1) \rightarrow 4(u - 3) - 3(v - 1) = 0$$

$$\xrightarrow{A+C=D+1} (-1, 4) + (u, v) = (3, 1) + (-1 - u, v + 3) \rightarrow -1 + u = 2 - u \rightarrow$$

$$u = \frac{3}{2} \quad v = -1$$

$$\rightarrow C = \left(\frac{3}{2}, -1\right) \rightarrow |AB| = \sqrt{4^2 + (-3)^2} = 5 \rightarrow BC = C - B = \left(-\frac{3}{2}, -2\right) \rightarrow |BC| = \frac{\sqrt{13}}{2}$$

$$\text{محور} = 2(|AB| + |BC|) = 2\left(5 + \frac{5}{2}\right) = 15$$

$$\frac{5}{2}$$

$$2u + (u^2 - 1)v = 3 \rightarrow u = -\frac{2u}{u^2 - 1}$$

(3)

$$u = \pm \sqrt{3} \rightarrow \frac{-2u}{u^2 - 1} = \sqrt{3} \rightarrow \sqrt{3}u^2 + 2u - \sqrt{3} = 0$$

$$\Delta = 4 - 12 = -8 \rightarrow u = \frac{\sqrt{3}}{2\sqrt{3}} \rightarrow \left| \frac{\sqrt{3}}{2\sqrt{3}} - \frac{-5}{2\sqrt{3}} \right| = \left| \frac{4}{2\sqrt{3}} \right| = \frac{2}{\sqrt{3}}$$

$$\frac{2}{\sqrt{3}} \vee \frac{\sqrt{3}}{2} = \frac{4\sqrt{3}}{2}$$

بازدهم β

معین نصری

تالیف شماره N

$$A(1,9) \quad B(3,3) \quad C(7,11)$$

(۴)

$$\Rightarrow M_{BC} = \frac{11-3}{7-3} = 2 \quad \Rightarrow BC = y-3 = 2(x-3) \rightarrow 2x - y - 3 = 0$$

$$A(1,9) \rightarrow AH = \frac{|2 - 9 - 3|}{\sqrt{2^2 + (-1)^2}} = \frac{10}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \boxed{2\sqrt{5}}$$

$$AB : y + 2x = 7$$

$$AC : 2y - 3x = 17$$

$$BC : 2y - 7x = -19$$

$$\Rightarrow B = \begin{cases} AB : (y + 2x = 7) \\ BC : (2y - 7x = -19) \end{cases} \rightarrow \begin{cases} -11x = -33 \\ x = 3 \\ y = -1 \end{cases}$$

(۵)

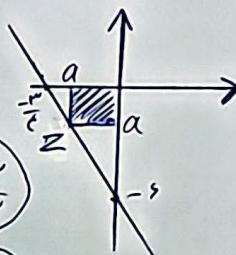
$$\Rightarrow BH = AC \Rightarrow \frac{|2 - 9 - 17|}{\sqrt{1^2 + 4}} = \frac{22}{\sqrt{5}} = \boxed{8\sqrt{5}}$$

$$\frac{x}{-\frac{1}{2}} + \frac{y}{-2} = 1 \rightarrow \frac{y}{-2} = -\frac{x}{\frac{1}{2}} - 1 \xrightarrow{\times 2} y = -14 - 2$$

$$\Rightarrow a = -14 - 2 \rightarrow 9a = -9$$

$$a = -\frac{2}{3} \xrightarrow{\text{مقدار}} (a) = \frac{2}{3}$$

$$\text{قطر} = \sqrt{2}a \rightarrow \sqrt{2} + \frac{2}{3} \left(\frac{2}{\sqrt{2}} \right) = \left(\frac{2}{3} \sqrt{2} \right)$$



(6)

$$y - ax = 1$$

$$a \quad y - ax = a - 1$$

$$\text{قطر} = 0$$

$$(1, 2)$$

$$\begin{cases} y - ax = 1 \rightarrow m = -\frac{a}{1} = -a \\ a \quad y - ax = a - 1 \rightarrow m' = -\frac{1}{a} = -\frac{1}{a} \end{cases} \rightarrow a = \frac{1}{a} \rightarrow a^2 = 1 \rightarrow a = \pm 1$$

$$a = 1 \begin{cases} y - x = 1 \\ y - x = 0 \end{cases}$$

$$a = -1 \begin{cases} y + x = 1 \\ y - x = -1 \end{cases}$$

$$\Rightarrow \begin{cases} x - y + 1 = 0 \\ x - y = 0 \end{cases} \Rightarrow d = \frac{|1|}{\sqrt{2}} = \left(\frac{\sqrt{2}}{2} \right)$$

$$x + \frac{1}{2} = 0 \rightarrow x + \frac{1}{2} = 0 \rightarrow x = -\frac{1}{2}$$

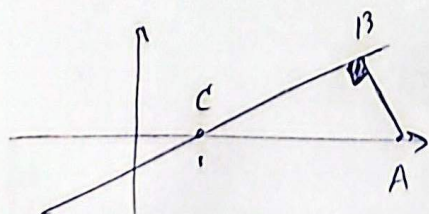
$$\rightarrow x = -\frac{1}{2} \rightarrow a = \frac{1}{\sqrt{2}} \rightarrow s = \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{1}{2} \left(\frac{1}{2} \right)$$

$$A(1, 0) \quad x - 3y = 1 \quad \left(\frac{1}{3}, \frac{1}{3} \right)$$

$$A(1, 0) = \frac{|1 - 0 - 1|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}}$$

$$\tan C = \frac{1}{\sqrt{2}}$$

$$\tan C = \frac{AB}{BC} = \frac{1}{\sqrt{2}} \rightarrow BC = \frac{1}{\sqrt{2}} \rightarrow \triangle ABC = \frac{1}{2} \times \frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{1}{4}$$



$$= \frac{1}{4}$$

(7)

$$\left(-\frac{1}{r}, a\right), \left(-\frac{1}{r}, b\right)$$

(9)

$$m = \sqrt{r} \rightarrow m = \frac{a-b}{-\frac{1}{r} + \frac{1}{r}} = \sqrt{r} \rightarrow a-b = \frac{\sqrt{r}}{r}$$

$$|AB| = \sqrt{(a-b)^2 + \left(-\frac{1}{r} + \frac{1}{r}\right)^2} = \sqrt{\left(\frac{\sqrt{r}}{r}\right)^2 + \left(-\frac{1}{r}\right)^2} = \sqrt{\frac{r}{r^2} + \frac{1}{r^2}} = \left(\frac{1}{r}\right)$$

$$\text{مساحت} = \sqrt{r} |AB| = \sqrt{r} \times \frac{1}{r} = \left(\frac{\sqrt{r}}{r}\right)$$

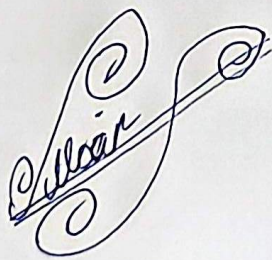
$$(-3, -4) \xrightarrow{\text{برای دایره}} r = \sqrt{(-3)^2 + (-4)^2} = (5) \rightarrow x^2 + y^2 = r^2 \rightarrow -\sqrt{x^2 - 1} =$$

$$m = \frac{-4}{-3} = \frac{4}{3} \rightarrow mL = -\frac{3}{4} \rightarrow y + 4 = -\frac{3}{4}(x + 3) \rightarrow y = -\frac{3}{4}x - \frac{25}{4}$$

$$\Rightarrow -\frac{3}{4}x - \frac{25}{4} = -\frac{3}{4}x - \frac{25}{4} \rightarrow y = \frac{4}{3}x + b \rightarrow \frac{|b|}{\sqrt{1+m^2}} = d \rightarrow 1+m^2 = \frac{r^2}{d^2} = \frac{25}{\frac{16}{9}} \rightarrow \frac{16}{9} = \frac{25}{1+m^2} \rightarrow m = \frac{d}{r}$$

$$\frac{|b|}{\frac{5}{4}} = d \rightarrow |b| = \frac{5d}{4} \rightarrow y = \frac{4}{3}x + \frac{5d}{4} \rightarrow \begin{cases} y = -\frac{3}{4}x - \frac{25}{4} \\ y = \frac{4}{3}x + \frac{5d}{4} \end{cases} \rightarrow \begin{cases} x = -\sqrt{1} \\ y = -1 \end{cases}$$

$$x \text{ نقطه } (-\sqrt{1}, -1) \rightarrow -\sqrt{x^2 - 1} = (1)$$



برمند بابت دست خط !