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$\frac{K-m}{-۲-۴} = -\frac{۱}{۲} \Rightarrow K-m = -۳$ ①

$\sqrt{(-۲-۴)^۲+(K-m)^۲} = \sqrt{۴۵} \Rightarrow S = \sqrt{۴۵} \times \sqrt{۴۵} = ۴۵$ ②

$x_A + x_B = x_C + x_D \rightarrow ۲x = ۳ \Rightarrow x = \frac{۳}{۲}$ ④

$m_{AB} = \frac{-۳}{۴} \overset{\perp}{\Rightarrow} m_{BC} = \frac{۴}{۳} \Rightarrow \frac{y-۱}{-\frac{۳}{۲}} = \frac{۴}{۳} \Rightarrow y = -۱$ ③

$BC = \sqrt{۴۰\frac{۹}{۴۰}} = \frac{۵}{۲}$

$AB = \sqrt{۹+۱۶} = ۵ \longrightarrow$ محیط $= ۲(AB + BC) = ۱۵$

$m = \tan ۶۰^\circ = \sqrt{۳} \rightarrow ۲mx + (m^۲-۱)y = ۳ \quad \frac{-۲m}{m^۲-۱} = \sqrt{۳} \Rightarrow \sqrt{۳}m^۲ + ۲m - \sqrt{۳} = ۰$ ④

$\frac{\sqrt{۵}}{|a|} = \frac{\sqrt{۴+۱}}{\sqrt{۳}} = \frac{۲\sqrt{۳}}{۳}$ ②

$m_{BC} = \frac{۱۱-۳}{۷-۲} = ۲ \Rightarrow y-۳ = ۲(x-۳) \rightarrow y = ۲x-۳$ ⑤

$\rightarrow y-۲x-۲ = ۰ \quad d = \frac{۱۰}{\sqrt{۵}} = ۲\sqrt{۵} \quad \left(d = \frac{|ax_۰+by_۰+c|}{\sqrt{a^۲+b^۲}}\right)$ ②

$AB: ۲y+۴x = ۱۴$ $\quad d = \frac{|۴y-۳x-۱۷|}{\sqrt{۲۵}} = \frac{۲۲}{۵}$ ⑥

$BC: ۲y-۷x = -۱۹$

$۱۱x = ۴۴ \Rightarrow x = ۴, y = ۱$

$m = \frac{0-6}{-\frac{3}{4}} = -8 \Rightarrow y = -8x - 6 \quad a = -8a - 6 \Rightarrow a = -\frac{2}{3}$ (۴)

(۲) مساحت $\Rightarrow \sqrt{\frac{4}{9} + \frac{4}{9}} = \frac{2\sqrt{2}}{3}$

$ay - x = a - 1 \Rightarrow y = \frac{x}{a} + \frac{a-1}{a}$ (۷)

$y - ax = 1 \Rightarrow y = ax + 1$ (۲)

$\Rightarrow \frac{1}{a} = a \Rightarrow a = \pm 1$

$a = 1 \Rightarrow y = x \Rightarrow y = x + 1$ ✓

$a = -1 \Rightarrow y = -x + 2, y = -x + 1$ ✗

$y = \frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \quad d = \sqrt{x^2+y^2} \Rightarrow (\frac{\sqrt{2}}{2})^2 + x^2 = 2 \Rightarrow x = \frac{\sqrt{7}}{\sqrt{2}}$

$S = \frac{\sqrt{7}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{4}} \times \frac{\sqrt{2}}{4} = \frac{\sqrt{7}}{4}$

$x - 3y = 1 \Rightarrow 3y = x + 1 \Rightarrow y = \frac{x}{3} - \frac{1}{3}$ (۸)

$d = \frac{|4-1|}{\sqrt{1+9}} = \frac{3\sqrt{10}}{10} \quad m_{AC} = -3 \Rightarrow y = -3(x-3) = -3x + 12$ (۲)

$\frac{x}{3} - \frac{1}{3} = -3x + 12 \Rightarrow 10x = 37 \Rightarrow x = 3,7, \; y = 0,9$

$\begin{vmatrix} 3,7 & 4 & 1 \\ 0,9 & 0 & 0 \\ 1 & 1 & 1 \end{vmatrix} = 0,7 \Rightarrow S = \frac{1}{2} \times 1,0 \times 1,7 = 1,35$

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$$m = \frac{b-a}{-\frac{1}{3}+\frac{1}{2}} = \sqrt{3} \rightarrow b-a = \frac{\sqrt{3}}{6} \quad (4)$$

(2)

$$a = \sqrt{(\frac{1}{6})^2 + (\frac{\sqrt{3}}{6})^2} = \sqrt{\frac{4}{36}} = \frac{2}{6} = \frac{1}{3} \Rightarrow b = \frac{\sqrt{3}}{3}$$

$$r = \sqrt{4^2+4^2} = 5 \quad m_{OA} = \frac{4}{3} \rightarrow m_L = \frac{-3}{4} \quad (16)$$

$$OA \parallel L' \rightarrow m_{L'} = \frac{4}{3} \quad OA \rightarrow y = \frac{4}{3}x \quad L' = \frac{4}{3}x + c \quad (2)$$

$$r = 5 \rightarrow \frac{c}{\sqrt{\frac{16}{9}+1}} = \frac{3c}{5} = 5 \Rightarrow c = \frac{25}{3}$$

$$L' \rightarrow y = \frac{4x}{3} + \frac{25}{3} \qquad L \rightarrow y + 4 = \frac{-3}{4} \Rightarrow y = \frac{-3x}{4} - \frac{25}{4}$$

$$\frac{4x_B}{3} + \frac{25}{3} = \frac{-3x}{4} x_B = \frac{25}{4} \xrightarrow{\times 12} 16x_B + 9x_B = -75 - 100$$

$$x_B = -7 \quad y_B = -1 \rightarrow xy = 7$$