

$A(-2, k), B(8, m)$

$$m_{AB} = \frac{\Delta y}{\Delta x} = \frac{m-k}{9} = -\frac{1}{3} \rightarrow m-k = -3$$

$$AB = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{(8+2)^2 + (m-k)^2} = \sqrt{100 + 9} = \sqrt{109}$$

$$S = (\sqrt{109})^2 = 109$$

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$A(-1, 4), B(3, 1), C(x, y), D(-1-x, y+3)$

$$m_{AB} \times m_{BC} = -1 \rightarrow m_{BC} = \frac{4}{3} = \frac{1-y}{3-\frac{3}{4}} \rightarrow y = -1$$

$$-1 + x = 3 - 1 - x \rightarrow 2x = 3 \rightarrow x = \frac{3}{2}$$

$$m_{AB} \times m_{BC} = -1 \rightarrow m_{BC} = \frac{4}{3} = \frac{1-y}{3-\frac{3}{4}} \rightarrow y = -1$$

$$AB = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{9 + 16} = 5$$

$$BC = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{\frac{9}{4} + 16} = \frac{17}{2}$$

$$S = 2(5 + \frac{17}{2}) = 27$$

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$$x \cdot m + (m^2 - 1)y = 3 \quad m = \tan 45^\circ = 1$$

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

$$(m' + 3)(m' - 1) = 0 \rightarrow m' = -3 \rightarrow m = \frac{-3}{1} = -3$$

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$$m_{\text{مماس}} = \frac{1}{\frac{1}{\sqrt{3}}} - \left(-\frac{3}{\sqrt{3}}\right) = \frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$$

$C(1, 1), B(3, 3), A(1, 9)$

$$m_{BC} = \frac{\Delta y}{\Delta x} = \frac{11-3}{3-1} = 4$$

$$y = ax + b \quad a = 4$$

$$y = 2(x) + b \rightarrow b = -2$$

$$y = 2x - 2$$

$$AH = \frac{|9 - 2 + 2|}{\sqrt{5}} = \frac{10}{\sqrt{5}} = \frac{10\sqrt{5}}{5} = 2\sqrt{5}$$

$$AH = \frac{|ax + by + c|}{\sqrt{a^2 + b^2}}$$

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$AB: y - 2x = 5$

$AC: 4y - 3x = 17$

$BC: 4y - 3x = 19$

بزرگم و قدر ۱۳

$$\begin{cases} y + 2x = 5 \\ 4y - 3x = 19 \end{cases} \Rightarrow \begin{cases} -4y - 8x = -20 \\ 4y - 3x = 19 \end{cases}$$

$$-11x = -39 \rightarrow x = 3, y = 1$$

$$BH = \frac{|a^2 + b^2 + c|}{\sqrt{a^2 + b^2}} = \frac{19 - 9 - 17}{5} = \frac{22}{5}$$

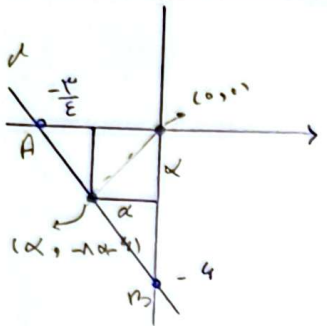
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$m = \frac{a+4}{-\frac{3}{E}+0} = -1$

$y = -1x + b \xrightarrow{b=-4} y = -1x - 4$

$\begin{cases} -1x - 4 \\ \alpha = -1\alpha - 4 \\ 2\alpha = -4 \rightarrow \alpha = -\frac{2}{1} = -2 \end{cases} \quad y = -\frac{2}{1}x$

$مسافة = \sqrt{Ax+By+C} = \sqrt{(0+\frac{2}{\sqrt{2}})^2 + (0+\frac{2}{\sqrt{2}})^2} = \frac{2}{\sqrt{2}} \sqrt{2}$



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$y - ax = 1 \quad ay - x = a - 1 \quad \text{مستقيمات} = \omega$

$\frac{1}{a} = \frac{a}{1} \rightarrow a^2 = 1 \quad a = \pm 1$

$a = 1 \rightarrow y = x + 1, y = x \quad \text{نقطة (1,1) في تقاطع المستقيمان} \quad y = 1 + 1\sqrt{1}, y = 1\alpha \Rightarrow a = 1$

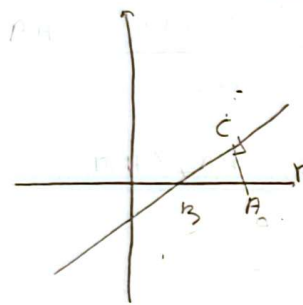
$a = -1 \rightarrow y = -x + 1, y = -x + 1 \quad (1,0) \quad y = -1 + 1\alpha, y = -1 + 1\alpha$

$\frac{|C-C'|}{\sqrt{a^2+b^2}} = \frac{|0+1|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$مسافة = \sqrt{طول^2 + عرض^2} \quad 2\omega = (\frac{\sqrt{2}}{2})^2 = \frac{2}{2} \quad \text{مسافة} = \sqrt{\frac{2}{2}} = \frac{\sqrt{2}}{2} \quad S = \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{1}{2}$

سوال (5)

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$y = \frac{1}{2}x - \frac{1}{2} \quad m_{AC} = -2 \Rightarrow y = -2(x-1) = y = -2x + 2$

نقطة تقاطع المستقيمان $\Rightarrow -2x + 2 = \frac{1}{2}x - \frac{1}{2} \Rightarrow \frac{5}{2}x = \frac{5}{2} \Rightarrow x = 1, y = 0.9$
 نقطة تقاطع المستقيمان $\Rightarrow \frac{1}{2}x - \frac{1}{2} = -2x + 2 \Rightarrow \frac{5}{2}x = \frac{5}{2} \Rightarrow x = 1, y = 0.9$

$AC = \sqrt{(0.9-0)^2 + (1-1)^2} = 0.9\sqrt{1} = 0.9 \quad BC = \sqrt{(1-1)^2 + (0.9-0)^2} = 0.9\sqrt{1} = 0.9$

$S = \frac{AB \times BC}{2} \Rightarrow \frac{0.9\sqrt{1} \times 0.9\sqrt{1}}{2} = 0.405$

سوال (6)

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$A(-\frac{1}{2}, a) \quad B(-\frac{1}{2}, b)$

$m_{AB} = \frac{a-b}{-\frac{1}{2} + \frac{1}{2}} = \sqrt{2} \rightarrow a-b = \frac{\sqrt{2}}{2}$

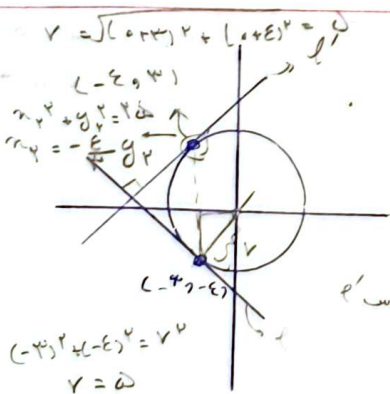
$AB = \sqrt{(\Delta x)^2 + (\Delta y)^2} = \sqrt{\frac{1}{4} + \frac{2}{4}} = \frac{\sqrt{3}}{2}$

$S_{\text{مربع}} = (\frac{\sqrt{3}}{2})^2 = \frac{3}{4}$

$S = \frac{(\text{مسافة})^2}{2} = \frac{3}{4} = \frac{D^2}{2} \rightarrow D^2 = \frac{3}{2} \rightarrow D = \sqrt{\frac{3}{2}} = \frac{\sqrt{6}}{2}$

سوال (7)

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$m = \frac{\Delta y}{\Delta x} = \frac{0+1}{0+1} = 1$

$m \times m_{\perp} = -1 \rightarrow m_{\perp} = -\frac{1}{1} = -1$

$m_{\perp} = \frac{1}{1} = 1$

معادلة الخط: $y + 1 = -\frac{1}{1}(x + 1) \rightarrow y = -x - 1$

نقطة تقاطع المستقيمان $\rightarrow (-\frac{1}{2}y)^2 + y^2 = 1 \rightarrow y^2 = 1 \quad y = 1, y = -1 \quad x = -1, x = 1$

معادلة الخط: $y - 1 = \frac{1}{1}(x + 1) \rightarrow y = x + 1$

نقطة تقاطع المستقيمان $\Rightarrow \frac{1}{2}x - \frac{1}{2} = \frac{1}{2}x + \frac{1}{2} \rightarrow x = -1, y = 1$

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

$xy \rightarrow (-1)(1) = -1$

سوال (8)

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