نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

$\frac{K-m}{-2-4} = \frac{K-m}{-6} = -\frac{1}{2} \to K-m=3$ $\sqrt{(2-6)^2+(K-m)^2} \to \sqrt{(-4)^2+3^2} = \sqrt{16+9} = \sqrt{25} = 5$ $S = 5^2 = (\sqrt{25})^2 = 25$	۱
$x_A + x_C = x_B + x_D \quad -1+2x = 3-1-x \to 3x = 3 \to x = \frac{3}{2}$ $m_{BD} = \frac{1-y-3}{3+1+\frac{3}{2}} = \frac{-2-y}{\frac{11}{2}} \to m' = -\frac{1}{m} = -\frac{1}{\frac{-2-y}{\frac{11}{2}}} = \frac{\frac{11}{2}}{2+y} \to 22 = -6-3y \to 28 = -3y \qquad y = -\frac{28}{3}$ $AB = \sqrt{\Delta x^2+\Delta y^2} \to \sqrt{(-1-3)^2+(4-1)^2} = \sqrt{(-4)^2+3^2} = 5 \qquad AD \to \sqrt{(-1+\frac{3}{2})^2+(4+\frac{28}{3})^2} = 10.44$ $P = 2(AB+AD) \to 2(5+10.44) = 2(15.44) = 30.88$	۲
$\tan\theta = \left\lvert\frac{m_1-m_2}{1+m_1m_2}\right\rvert \to \sqrt{3} = \left\lvert\frac{m_1-m_2}{1+m_1m_2}\right\rvert \to \lvert m_1-m_2\rvert = \sqrt{3}\,\lvert 1+m_1m_2\rvert$ $m_2 = \tan(\theta+60) \to \tan(\theta+60°) = \frac{\tan\theta_1 + \tan 60}{1-\tan\theta_1 \tan 60} = \frac{m_1+\sqrt{3}}{1-\sqrt{3}m_1} = m_2$ $\lvert m_2-m_1\rvert = \left\lvert\frac{m_1+\sqrt{3}}{1-m_1\sqrt{3}} - m_1\right\rvert \to \left\lvert\frac{m_1+\sqrt{3}-m_1(1-m\sqrt{3})}{1-m\sqrt{3}}\right\rvert = \left\lvert\frac{\sqrt{3}(1+m^2)}{1-m_1\sqrt{3}}\right\rvert$ $\xrightarrow{m_1=0} \lvert m_2-m_1\rvert = \sqrt{3}$	۳
$\frac{1}{2}\begin{vmatrix}1 & 9 & 1\\ 3 & 3 & 1\\ 7 & 11 & 1\end{vmatrix} = \frac{1}{2}(3+63+33-21-27-11) = 20 \qquad BC = \sqrt{\Delta x^2+\Delta y^2} = \sqrt{(7-3)^2+(11-3)^2}$ $BC = \sqrt{(7-3)^2+(11-3)^2} = \sqrt{4^2+8^2} = 4\sqrt{5} \qquad \frac{BC \times AH}{2} = 20 \to \frac{4\sqrt{5} \times AH}{2} = 20$ $4\sqrt{5} \times AH = 40 \to AH = \frac{10}{\sqrt{5}} \qquad \frac{10}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{10\sqrt{5}}{5} = 2\sqrt{5} = AH$	۴
$B\begin{cases}2y-7x=-19\\ y+2x=7\end{cases} \to x=3 \quad y+2(3)=7 \to y=1 \qquad B\begin{vmatrix}3\\1\end{vmatrix} \qquad C\begin{cases}2y-7x=-19\\ 4y-3x=17\end{cases} \Rightarrow x=5 \quad 4y=17+15 \to 4y=32 \quad y=8$ $A\begin{cases}y+2x=7\\ 4y-3x=17\end{cases} \quad y=5 \quad x=1 \qquad A\begin{vmatrix}1\\5\end{vmatrix} \qquad C\begin{vmatrix}5\\8\end{vmatrix}$ $\frac{1}{2}\begin{vmatrix}1 & 5 & 1\\ 3 & 1 & 1\\ 5 & 8 & 1\end{vmatrix} = \frac{1}{2}(1+25+24-5-8-15) = 11 \qquad AC = \sqrt{\Delta x^2+\Delta y^2} \to \sqrt{(5-1)^2+(8-5)^2} = \sqrt{4^2+3^2} = 5$ $\frac{5 \times BH}{2} = 11 \to 5BH = 22$	۵

$BH = \frac{22}{5}$

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$m_d = \frac{-6-0}{0-\frac{3}{4}} = \frac{-6}{\frac{3}{4}} = -8 \quad y-y_0 = m(x-x_0) \to y-(-6) = -8(x-0)$

$y+6 = -8x \to y = -8x-6 \quad \begin{cases} y=-8x-6 \\ y=x \end{cases} \to x = -\frac{2}{3}$

$\sqrt{\Delta x^2+\Delta y^2} \to \sqrt{\left(-\frac{2}{3}-0\right)^2+\left(-\frac{2}{3}-0\right)^2} = \frac{2}{3}\sqrt{2}$

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$ay = x+a-1 \to y = \frac{1}{a}x + \frac{a-1}{a} \quad a=+1 \to y-x=1 \xrightarrow{(1,2)} 2-1=1$ ✓

$y = ax+1 \quad a = \frac{1}{a} \to a^2=1 \to a=\pm 1 \quad y-x=0 \to 2-1=0$ ✗

$a=-1 \to -y+x=1 \xrightarrow{(1,2)} -2+1=1$ ✗ $\quad a=+1 \to \begin{cases} y-x-1=0 \\ y-x=0 \end{cases} \quad \frac{|c'-c|}{\sqrt{a^2+b^2}} = \frac{|-1-0|}{\sqrt{1^2+(-1)^2}}$

$-y-x=-2 \to -2-1=-2$ ✗

$\frac{1}{\sqrt{2}} =$ فاصله دو خط $\to 5^2-\left(\frac{1}{\sqrt{2}}\right)^2 = x^2 \to 25-\frac{1}{2} = x^2 \to \frac{49}{2} = x^2 \to x = \frac{7}{\sqrt{2}} \Big/ S = \frac{7}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{7}{2}$

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$\frac{|ax_0+by_0+c|}{\sqrt{a^2+b^2}} \to \frac{|4-3(0)-1|}{\sqrt{1^2+(-3)^2}} = \frac{3}{\sqrt{10}} = \frac{|c'-c|}{\sqrt{a^2+b^2}} = \frac{|k-1|}{\sqrt{10}} \to |k-1| = 3 \begin{cases} k=4 \\ k=-2 \end{cases}$

$k=4 \to x-3y=-4 \to 3(1)-1/5=2$ ✓ $\quad k=-2 \to x-3y=-2 \to 3/5-1/5=2$ ✗

$x-3y=1 \xrightarrow{y=0} x=1 \quad B\left|\begin{smallmatrix}1\\0\end{smallmatrix}\right.$ $\quad x=4 \to x-3y=1 \to 4-3y=1 \to 3y=3 \to y=1$

$x-3y=1 \xrightarrow{x=0} -3y=1 \to y=-\frac{1}{3}$ ✗ نمی‌تواند باشد $\quad$ نقطه C باید روی خط دیگر باشد $C\left|\begin{smallmatrix}4\\1\end{smallmatrix}\right.$

$S = \frac{1}{2} \times$ قاعده $\times$ ارتفاع $= \frac{1}{2}(4-1)(1-0) = \frac{3}{2}$

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$\frac{a-b}{-\frac{1}{2}-\left(-\frac{1}{3}\right)} = \sqrt{3} \to \frac{a-b}{\frac{-3+2}{6}} = \frac{a-b}{-\frac{1}{6}} = \sqrt{3} \quad a-b = -\frac{\sqrt{3}}{6} \Big/ \sqrt{\Delta x^2+\Delta y^2}$

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

$\frac{2}{6} \times \frac{2}{6} = \frac{4}{36} = S \quad S = \frac{\text{قطر} \times \text{قطر}}{2} \to \frac{x^2}{2} = \frac{1}{9} \to x^2 = \frac{2}{9} \to x = \sqrt{\frac{2}{9}} = \frac{\sqrt{2}}{3}$

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$\sqrt{\Delta x^2+\Delta y^2} = \sqrt{(0-(-3))^2+(0-(-4))^2} = 5 \quad -4(x)+y(-3) = 25 \quad x(x_1)+y(y_1) = r^2$

$-4(x)-3y = 25 \to 4x+3y+25=0 \to m = -\frac{4}{3} \quad m' = -\frac{1}{m} = -\frac{1}{-\frac{4}{3}} = \frac{3}{4}$

$y = \frac{3}{4}x \pm 5\sqrt{\left(\frac{3}{4}\right)^2+1} \Rightarrow y = \frac{3}{4}x \pm \frac{25}{4} \quad \begin{cases} y = \frac{3}{4}x+\frac{25}{4} \to 3x-4y+25=0 \\ y = \frac{3}{4}x-\frac{25}{4} \to 3x-4y-25=0 \end{cases}$

$\begin{matrix} x<0 \\ y>0 \end{matrix}$ ناحیه دوم $\begin{cases} (-1,3) \to -3-12+25 \ne 0 \checkmark \\ (-1,3) \to -3-12-25 \ne 0 \times \end{cases}$

$\begin{cases} 3x-4y+25=0 \\ 4x+3y+25=0 \end{cases} \Rightarrow \begin{matrix} x=-7 \\ y=1 \end{matrix} \quad x \times y = -7 \times 1 = -7$