نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۷ ..... کلاس ..... دهم .....

$m = \frac{k-m}{-۲-۴} = -\frac{۱}{۲} \rightarrow k-m = ۳$

$|AB| = \sqrt{(۴+۲)^۲+(۳)^۲} = \sqrt{۳۶+۹} = \sqrt{۴۵} = ۳\sqrt{۵}$

$S_{مربع} = ۳\sqrt{۵} \times ۳\sqrt{۵} = ۹ \times ۵ = ۴۵$

$m_{AB} = m_{CD} \rightarrow \frac{۴-۱}{-۱-۲} = \frac{y+۲-y}{-۱-x-x} \rightarrow \frac{۳}{-۴} = \frac{۲}{-(۱+۲x)} \rightarrow x = ۱/۵ \rightarrow C(۱/۵, -۱)$

$AC \perp AB \rightarrow m_{AB} = -\frac{۳}{۴} \Rightarrow m_{AC} = \frac{۴}{۳}$ $\frac{۴}{۳} = \frac{y-۱}{\frac{۳}{۲}-۲}$ $\rightarrow y-۱ = \frac{۴}{۳} \times (-\frac{۳}{۴}) = -۲$

$y = -۱$

$\sqrt{۹+۱۹} = \sqrt{۴۸} = ۵$

$\sqrt{\frac{۹}{۴}+۴} = \sqrt{\frac{۲۵}{۴}} = ۲/۵$

$\rightarrow ۲(۲/۵+۵) = ۱۵$

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

$\sqrt{۳}m^۲ + ۲m - \sqrt{۳} = ۰ \rightarrow m^۲ + ۲m - ۳ = ۰ \rightarrow (m+\frac{۳}{\sqrt{۳}})(m-\frac{۱}{\sqrt{۳}}) \rightarrow$ $m_۱ = -\sqrt{۳}$, $m_۲ = \frac{\sqrt{۳}}{۳}$

$m_۲ - m_۱ = \frac{\sqrt{۳}}{۳} - (-\sqrt{۳}) = \frac{\sqrt{۳}}{۳} + \sqrt{۳} = \frac{۴\sqrt{۳}}{۳}$

$m_{BC} = \frac{۱۱-۳}{۷-۲} = ۲$ $y = ۲x-۳ \rightarrow -۲x+y+۳ = ۰$

$\frac{|-۲(۱)+۱(۹)+۳|}{\sqrt{۴+۱}} = \frac{۱۰}{\sqrt{۵}} = ۲\sqrt{۵}$

$\begin{cases} AB: y+۲x = ۷ \\ BC: ۲y-۷x = -۱۹ \end{cases}$ $x = -\frac{-۱۹-۱۴}{-۷-۴} = -۳$ $y = \frac{-۲۱+۴۹}{-۷-۴} = -۱$

$\frac{|۴(-۱)-۳(۳)-۱۷|}{\sqrt{۴^۲+۳^۲}} = \frac{۱۰}{۵} = ۲$

$\frac{x}{\frac{x}{4}} = \frac{4-x}{4} \rightarrow 4x = 4 \times \frac{x}{4} - \frac{x}{4}x \rightarrow \frac{5}{4}x^2 = x \rightarrow x = \frac{4}{5}$

$x = \frac{4}{5}$

$\frac{4}{5}\sqrt{2}$ ou $\sqrt{2x^2} = x\sqrt{2} = \frac{4}{5}\sqrt{2}$

$\frac{4}{5}\sqrt{2}$

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

$a = 1$ ou $y = x$ $\rightarrow$ $y = x + 1$

$\rightarrow y = \frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$a = -1$ $y = -x + 2$, $y = -x + 1$ ou

$a = \sqrt{x^2 + y^2} \Rightarrow \left(\frac{\sqrt{2}}{2}\right)^2 + x^2 = 2a \rightarrow x^2 = \frac{7a}{4} \rightarrow x = \frac{5}{\sqrt{2}} = \frac{5\sqrt{2}}{2}$

$S = \frac{\sqrt{2}}{2} \times \frac{5\sqrt{2}}{2} = \frac{5}{2} = 2{,}5$

$y = \frac{1}{4}x - \frac{1}{4}$ $m_{AC} = -4 \rightarrow y = -4x + 12$

$-4x + 12 = \frac{1}{4}x - \frac{1}{4} \rightarrow \frac{47}{4} = \frac{17}{4}x \rightarrow x = 4{,}7$, $y = 0{,}9$

$AC = \sqrt{(0{,}4)^2 + (0{,}9)^2} = 0{,}4\sqrt{10}$ $BC = \sqrt{(4{,}7 - 4)^2 + (0{,}9)^2} = 0{,}9\sqrt{10}$

$S = \frac{AB \times BC}{2} = \frac{0{,}4\sqrt{10} \times 0{,}9\sqrt{10}}{2} = 1{,}8$

$m = \sqrt{2} = \frac{b - a}{-\frac{1}{4} + \frac{1}{2}} \rightarrow \frac{b - a}{\frac{1}{4}} = \sqrt{2} \rightarrow b - a = \frac{\sqrt{2}}{4}$

$a = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} = \sqrt{\frac{1}{32} + \frac{2}{32}} = \sqrt{\frac{3}{32}} = \frac{2}{4} = \frac{1}{2}$

$-\frac{1}{2} - \left(-\frac{1}{4}\right) = \frac{1}{4}$ $\frac{\sqrt{2}}{4}$

$\tan\theta = \frac{\sqrt{2}}{2}$

$\sqrt{x^2 + 4^2} = 5$ $m_{OA} = \frac{4}{3} \rightarrow m_\perp = -\frac{3}{4}$ $OA : y = \frac{4}{3}x$

$\hookrightarrow m_{\perp'} = \frac{4}{3}$ $\perp' = \frac{4}{3}x + C \rightarrow \frac{4}{3} \times 4 + C$

$r = 2 = \frac{C}{\sqrt{1^2 + \left(\frac{4}{3}\right)^2}} = \frac{C}{\frac{5}{3}} = \frac{3C}{5} = 2 \rightarrow C = \frac{10}{3}$ $\perp : -\frac{3}{4}x - \frac{10}{3}$

$\frac{4}{3}x_B + \frac{10}{3} = -\frac{3}{4}x_B - \frac{10}{3} \rightarrow 25x_B = -175 \rightarrow x_B = -7$ $y_B = -\frac{3}{4}(-7) - \frac{10}{3} = 1$

$(-7 ; 1)$