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

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$\frac{\Delta y}{\Delta x} = \frac{-6-8}{4-2} = \frac{-14}{2} = -7 \qquad m' = -\frac{1}{m} = -\frac{1}{-7} = \frac{1}{7}$

$x_G = \frac{2+4}{2} = 3 \qquad y_G = \frac{8+(-6)}{2} = 1 \qquad y - y_0 = m(x - x_0)$

$y - 1 = \frac{1}{7}x - \frac{3}{7} \rightarrow y = \frac{1}{7}x - \frac{3}{7} + 1 \rightarrow y = \frac{1}{7}x + \frac{4}{7}$

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$\frac{1}{2}\begin{vmatrix} 3 & 1 & 1 \\ -4 & 7 & 1 \\ -1 & 3 & 1 \end{vmatrix} = \frac{1}{2}(21 - 1 - 12 + 7 - 9 + 4) = \frac{1}{2}(10) = 5$

$BC = \sqrt{\Delta x^2 + \Delta y^2} = \sqrt{(-4+1)^2 + (7-3)^2} = \sqrt{(-3)^2 + 4^2} = 5$

$BC - AH = 5 - 2 = 3$

$\frac{BC \times AH}{2} = 5 \rightarrow \frac{5 \times AH}{2} = 5 \rightarrow \frac{AH}{2} = 1 \rightarrow AH = 2$

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$2y - 5x - 7 = 0 \rightarrow 4y - 2x - 14 = 0 \qquad \frac{4}{a} = \frac{-2}{-a} \rightarrow a = 2$

$4y - 5x - 2 = 0 \qquad 4y - 5x - 2 = 0$

$\frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{|-14 - -2|}{\sqrt{4^2 + (-2)^2}} \Rightarrow \frac{12}{\sqrt{16+4}} = \frac{12}{\sqrt{20}} =$ قطر $\quad \frac{\text{قطر}}{2} \rightarrow \frac{\frac{12}{\sqrt{20}}}{2} = \frac{6}{\sqrt{20}} = R$

$S = \pi R^2 \Rightarrow \pi\left(\frac{6}{\sqrt{20}}\right)^2 = \pi \times \frac{36}{20} = 1.8\pi$

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$m = \frac{\Delta y}{\Delta x} = \frac{3-1}{2-4} = \frac{2}{-2} = -1 \qquad m' = -\frac{1}{m} = -\frac{1}{-1} = 1 \qquad y = -x + c \rightarrow 3 = -2 + c \rightarrow c = 5$

$y = x - 2$

$y = 1x + c \rightarrow -3 = -1 + c \rightarrow c = -2 \rightarrow y = x - 2 \qquad y = -x + 5 \rightarrow 2y = 3 \rightarrow y = \frac{3}{2}$

$\frac{3}{2} = x - 2 \rightarrow x = \frac{3}{2} + 2 = \frac{7}{2} \qquad H\left|\begin{matrix}\frac{7}{2}\\ \frac{3}{2}\end{matrix}\right. \qquad x_M = \frac{x_A + x_B}{2} = \frac{2+4}{2} = 3 \qquad y_M = \frac{y_A + y_B}{2} = \frac{3+1}{2} = 2$

$M\left|\begin{matrix}3\\ 2\end{matrix}\right. \qquad \sqrt{\Delta x^2 + \Delta y^2} \rightarrow \sqrt{\left(\frac{7}{2}-3\right)^2 + \left(\frac{3}{2}-2\right)^2} \Rightarrow \sqrt{\left(\frac{1}{2}\right)^2 + \left(-\frac{1}{2}\right)^2} = \sqrt{\frac{1}{2}} = \frac{1}{\sqrt{2}} \rightarrow \frac{\sqrt{2}}{2}$

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$(5-m)y = -(3m-2)x + 7 \rightarrow \frac{-(3m-2)}{(5-m)} \qquad m \times m' = -1$

$-(2m-4)y = -(m+1)x - 1 \rightarrow \frac{-(m+1)}{-(2m-4)} = \frac{m+1}{2m-4} \qquad -\frac{(3m-2)}{5-m} \times \frac{m+1}{2m-4} = -1$

$\frac{(3m-2) \times (m+1)}{(5-m) \times (2m-4)} = 1 \rightarrow (3m-2) \times (m+1) = (5-m)(2m-4) \rightarrow 3m^2 + m - 2 = -2m^2 + 14m - 20$

$\rightarrow 5m^2 - 13m + 18 = 0 \qquad \Delta = b^2 - 4ac \rightarrow (-13)^2 - 4(5)(18) = 169 - 360 = -191$

جواب Δ منفی است پس جواب حقیقی ندارد

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$B\begin{cases}x+2y=3\\x+y=4\end{cases} \to y=-1 \to x-1=4 \to x=5 \quad B\left|\begin{matrix}5\\-1\end{matrix}\right.$

$A\begin{cases}x+2y=3\\y=2x-1\end{cases} \to \begin{matrix}2y=3-x\\y=2x-1\end{matrix} \to x=1 \to y=2(1)-1=1 \quad A\left|\begin{matrix}1\\1\end{matrix}\right.$

$C\begin{cases}y=2x-1\\x+y=4\end{cases} \to \begin{matrix}y-2x=-1\\y+x=4\end{matrix} \to 3y=7 \to y=\frac{7}{3} \to \frac{7}{3}+x=4 \to x=4-\frac{7}{3}=\frac{5}{3} \quad C\left|\begin{matrix}5/3\\7/3\end{matrix}\right.$

$M_{BC} \to y=-x+4,\ m=-1 \quad m'=1 \to y=x+c \to 1=1+c \to c=0 \to y=x$

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$y=-\frac{1}{2}x+B \to y+\frac{1}{2}x-B=0 \qquad \frac{|0+0-B|}{\sqrt{1+\frac{1}{4}}}=\sqrt{20} \to |-B|=\sqrt{20\times\frac{5}{4}}=\sqrt{25}=5$

$|-B|=5\begin{cases}-B=5 \to B=-5\\B=5\end{cases} \qquad 0=-\frac{1}{2}x+5 \to \frac{1}{2}x=5 \to x=10 \to \sqrt{(10-0)^2+(0-5)^2}=\sqrt{125}$

$0=-\frac{1}{2}x-5 \to 5=-\frac{1}{2}x \to x=-10 \to \sqrt{(-10-0)^2+(0+5)^2}=\sqrt{125}$

طول $=\sqrt{125}=\sqrt{25\times5}=5\sqrt{5}$

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$my=4x+2m \to y=\frac{4}{m}x+2 \to 0=\frac{4}{m}x+2 \to -2=\frac{4}{m}x \to x=-\frac{m}{2}$

$y=(1-m)x+2 \to -2=(1-m)x \to x=-\frac{2}{1-m}$ $\quad$ $-2+\sqrt{5} \times -2-\sqrt{5} \times 3=(4-5)\times3=-3$

$\left|-\frac{m}{2}-\left(\frac{-2}{1-m}\right)\right|=\left|-\frac{m}{2}+\frac{2}{1-m}\right| \qquad \frac{5}{2}=\frac{\left|-\frac{m}{2}+\frac{2}{1-m}\right|\times2}{2} \to \frac{5}{2}=\left|-\frac{m}{2}+\frac{2}{1-m}\right|$

$\frac{5}{2}=-\frac{m}{2}+\frac{2}{1-m} \to 5-5m=-m+m^2+4 \to m^2+4m-1=0 \to \Delta=16-4(1)(-1)=20$

$m=\frac{-4\pm\sqrt{20}}{2} \to -2+\sqrt{5},\ -2-\sqrt{5} \qquad -\frac{5}{2}=-\frac{m}{2}+\frac{2}{1-m} \to -5+5m=-m+m^2+4 \to m^2-6m+9 \to \Delta=0 \to m=\frac{6}{2}=3$

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$(x',y')=(2x_m-x,\ 2y_m-y)$

$x'=4-x \quad y'=-2-y$

$y=2x-3 \to (-2-y')=2(4-x')-3$

$-2-y'=8-2x'-3 \to -2-y'=5-2x' \to y'=2x'-9 \to y=2x-9$

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$y=x+5 \to m=1 \to m'=-\frac{1}{m}=-\frac{1}{1}=-1 \qquad y=-x+c \to 2=-1+c \to c=3$

$\begin{matrix}y=-x+3\\y=x+5\end{matrix} \to 2y=5+3=8 \to y=4 \to 4=x+5 \to x=4-5=-1 \qquad M\left|\begin{matrix}-1\\4\end{matrix}\right.$

$\frac{x_A+x_{A'}}{2}=x_M \quad \frac{a+1}{2}=-1 \to a=-3 \qquad \frac{y_A+y_{A'}}{2}=y_M \quad \frac{b+2}{2}=4 \to b+2=8 \to b=6$

$2b-a=2(6)-(-3)=12+3=15$

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