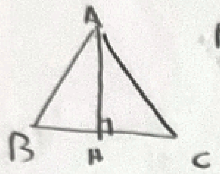
19,75 16 شهرزاد شوشتری

$M \left| \begin{array}{l} \frac{x_A+x_B}{2} \\ \frac{y_A+y_B}{2} \end{array} \right. \to M \left| \begin{array}{l} 3 \\ 1 \end{array} \right.$ $m_{AB} = \frac{-6-8}{4-2} = \frac{-14}{2} = -7 \to m = \frac{1}{7}$ 2

$y-1 = \frac{1}{7}(x-3) = y-1 = \frac{1}{7}x - \frac{3}{7} \to y = \frac{1}{7}x + \frac{4}{7} \xrightarrow{\times 7} \boxed{7y = x+4 = 0}$



$BC = \sqrt{9+16} = 5$

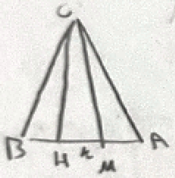
$\to m_{BC} = \frac{7-3}{-4+1} = \frac{4}{-3} \to m_{AH} = \frac{3}{4}$ 2 2)

$y-3 = \frac{-4}{3}(x+1) = y-3 = -\frac{4}{3}x - \frac{4}{3} \to y = \frac{-4}{3}x + \frac{5}{3}$

$\xrightarrow{\times 3} 3y = -4x+5 \to A$ نقطه $\to d = \frac{|12+3-5|}{5} = \frac{10}{5} = 2$ $5-2 = \boxed{3}$

$\frac{4}{2} = \frac{+a}{+1}$ $\boxed{a=2}$ $\to$ $2y-2x-2=0$, $4y-2x-14=0$ $d = \frac{|-14+2|}{\sqrt{4+16}} = \frac{12}{\sqrt{20}} = \frac{6}{\sqrt{5}}$ 2 3)

$S = \pi r^2 = \boxed{\frac{9}{5}\pi}$ $\downarrow$ $2\sqrt{5}$



$M \left| \begin{array}{l} \frac{x_A+x_B}{2} \\ \frac{y_A+y_B}{2} \end{array} \right.$ $M \left| \begin{array}{l} 3 \\ 2 \end{array} \right.$ $m_{AB} = \frac{3-1}{2-4} = -1$

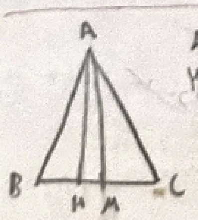
$y-3 = -1(x-2) = y-3 = -x+2 \to y = -x+5 \to m_{CH} = 1$ 1,75 4)

$y+3 = x+1 \to y = x-2 \to x-2 = -x+5 \to x = 3.5$ $y = 1.5 \to \sqrt{\frac{1}{4}+\frac{1}{4}} = \sqrt{\frac{1}{2}} = \frac{\sqrt{2}}{2}$

$m_1 \times m_2 = -1 \to \frac{-m-1}{-2m+4} \times \frac{2-3m}{5-m} = -1 \to \frac{-m-1}{-2m+4} = \frac{m-5}{2-3m} \to -2m^2+4m+10m-20$

$-2m^2+4m+10m-20 = -2m-2+3m^2+3m \to -2m^2+14m-20 = 3m^2+m-2$ 5)

$5m^2-13m+18=0$ $\Delta<0$ m ممتنع 2



$x+2y=3$
$3x-y=1$

$A=(1,1)$ $x = -\frac{5}{-5} = 1$, $y = \frac{-5}{-5} = 1$

$x+2y=3$
$-x+y=-4$
$y=-1$
$x=5$
$B=(5,-1)$

$2x-y=1$
$x+y=4$
$3x=5$
$x=\frac{5}{3}$ $y=\frac{7}{3}$

$C=(\frac{5}{3},\frac{7}{3})$ 2 6)

$M=(\frac{10}{3},\frac{2}{3}) \to AM = \sqrt{(\frac{7}{3})^2+(\frac{1}{3})^2} = \sqrt{\frac{49}{9}+\frac{1}{9}} = \frac{50}{9}$ $\frac{5}{3}\sqrt{2}$ $AH = \sqrt{2}$

$-y+1 = -x+5 \to y = -x+4$

$\frac{\frac{5\sqrt{2}}{3}}{\sqrt{2}} = \boxed{\frac{5}{3}}$

شهرزاد قمونشی

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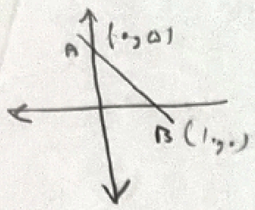

$y+\frac{1}{2}x-b=0$

$\frac{|-b|}{\underbrace{\sqrt{1+\frac{1}{4}}}_{\sqrt{\frac{5}{4}}}}=\sqrt{20}$ $\quad b=2\sqrt{5}\times\sqrt{\frac{5}{4}}=5$ $\quad \frac{\sqrt{5}}{2}$ $\quad y=+b\to y=5 \quad A(0,5)$

$0=-\frac{1}{2}x+5\to B=(10,0)$

$\sqrt{25+100}=\boxed{5\sqrt{5}}$

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$y=\frac{4}{m}x+2\to \begin{array}{l} x=0 \; y=2 \\ y=0 \; x=-\frac{m}{2}\end{array}$ $\quad \begin{array}{l} x=0 \; y=2 \\ y=0 \; x=\frac{2}{m-1}\end{array} \leftarrow y=x(1-m)+2$

$\to \frac{1}{2}\times 2\times\left(-\frac{m}{2}-\frac{2}{m-1}\right)=\frac{5}{2}\to -\frac{m}{2}-\frac{2}{m-1}=\frac{5}{2}\xrightarrow{\times 2(m-1)}-m^2+m-4=5m-5$

$m^2+4m-1=0 \quad (m=\frac{-4\pm 2\sqrt{5}}{2}\to m=\boxed{-2\pm\sqrt{5}} \quad \sqrt{16+4}=2\sqrt{5}$

$\frac{1}{2}\times 2\left(\frac{2}{m-1}+\frac{m}{2}\right)=\frac{5}{2}\to 2m^2-12m+18=0\to m^2-6m+9=0 \quad (m-3)^2=0 \quad m=3$

$-3\times(-2-\sqrt{5})(-2+\sqrt{5})=-3$

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$y=2x-3\to y-2x+3=0 \quad \frac{|2-4+3|}{\sqrt{1+4}}=\frac{3}{\sqrt{5}} \quad |y-2x-b=0 \quad \frac{|3+b|}{\sqrt{1+4}}=\frac{6}{\sqrt{5}}$

$b\to 3$

$b\to -9$ ✓

$y=+2x-9$ $\quad d=\frac{|2-4+9|}{\sqrt{5}}=\frac{3}{\sqrt{5}}$ ✓

$y=+2x+3$

$d=\frac{|2-4-3|}{\sqrt{5}}\neq\frac{3}{\sqrt{5}}$ ✗

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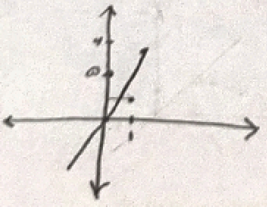

$y-x+b\to y-x+2 \quad y=4\to M=(-1,6)$

$-x+3=x+5\to x=-1$

$1+x_{A'}=-2 \quad x_A=-3$

$2+y_{A'}=8 \quad y_A=6$

$A'=(-3,6) \quad |b-a|=12+3=\boxed{15}$