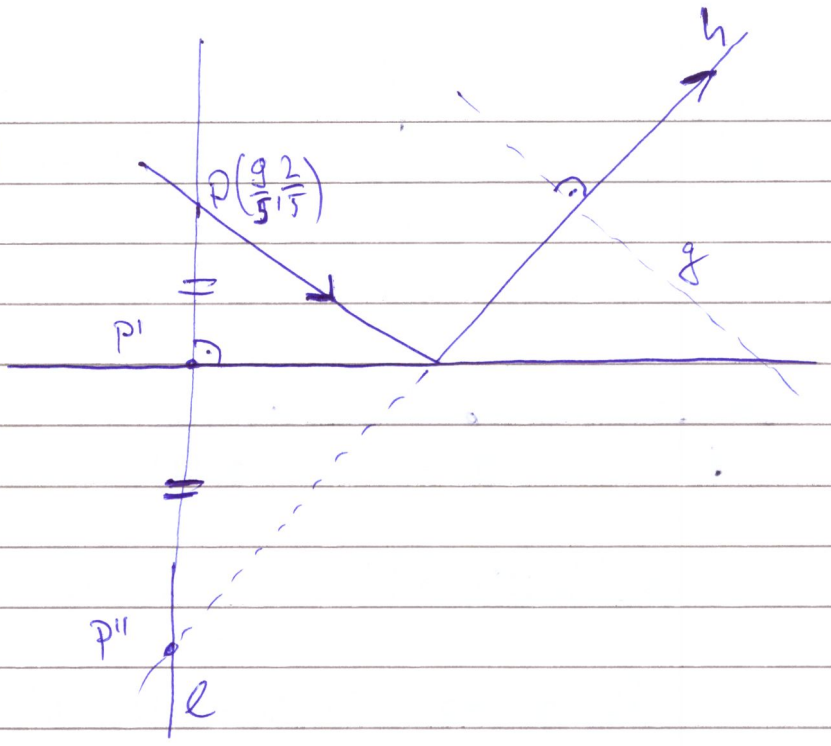
2011г.

$P\left(\frac{9}{5}, \frac{2}{5}\right)$ $B(3,1)$

$s: x-2y+1=0$

$q: 2x-y+3=0$

$m: 6x+7y-15=0$



a) $h \perp q \Rightarrow h: -x-2y+c_1=0$

Спускаме перпендикуляр на s през P.

$l \perp s \Rightarrow l: -2x-y+c_2=0$

$l \ni P \Rightarrow -2\cdot\frac{9}{5} - 1\cdot\frac{2}{5} + c_2 = 0$

$c_2 = 4 \rightarrow l: -2x-y+4=0$

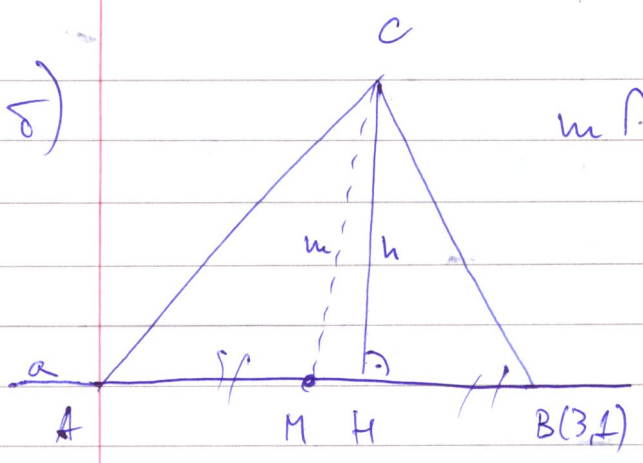
$P' = s \cap l$ $\quad P': \begin{vmatrix} x-2y+1=0 \\ -2x-y+4=0 \end{vmatrix}$ $\quad P' = \left(\frac{7}{5}, \frac{6}{5}\right)$

$h \perp q \Rightarrow h: -x-2y+c_1=0$

$h \ni P \Rightarrow -1-2\cdot 2+c_1=0 \Rightarrow h: -x-2y+5=0$

$c_1 = 5$

б)



$m \cap h = C: \begin{cases} 6x+7y-15=0 \\ -x-2y+5=0 \end{cases} \rightarrow C=(-1,3)$

$a \perp h \Rightarrow a: -2x+y+c_2=0$

$B \in a \Rightarrow -2\cdot 3+1+c_2=0 \Rightarrow a: -2x+y+5=0$

$c_2=5$

$h \cap a = H: \begin{cases} -2x+y+5=0 \\ -x-2y+5=0 \end{cases} \rightarrow H(-3,4)$

$m \cap a = M: \begin{cases} 6x+7y-15=0 \\ -2x+y+5=0 \end{cases} \rightarrow M\left(+\frac{5}{2}, 0\right)$

$MB = AM$

$|\overrightarrow{MB}| = \sqrt{\left(3-\frac{5}{2}\right)^2+(1-0)^2} = \sqrt{1/4+1} = \sqrt{5}/2$

$|\overrightarrow{AM}| = \sqrt{\left(x_1+\frac{5}{2}\right)^2+y_1^2} = \frac{\sqrt{5}}{2} \rightarrow A(2,-1)$

$a: -2x_1+y_1+5=0$

$B(x_B,y_B)\ M(x_M,y_M)\ A(x_A,y_A)$

$x_B-x_M=x_M-x_A \qquad y_B-y_M=y_M-y_A$

Дополнительно: $b: \frac{x-3}{-1-3}=\frac{y-1}{3-1} \Rightarrow b: x+2y-5=0$

$c: \frac{x-2}{-3}=\frac{y+1}{4} \rightarrow -3(y+1)-4(x-2)=0$

$c: -4x-3y+5=0$