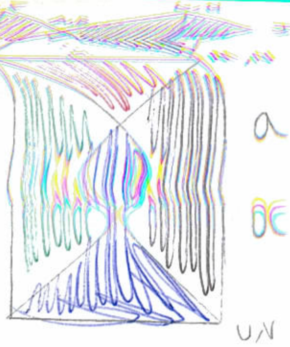
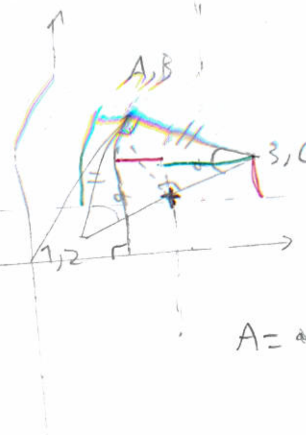


$2a^2 - \frac{a^2}{4} = y^2$

$y = \sqrt{\frac{3a^2}{4}}$

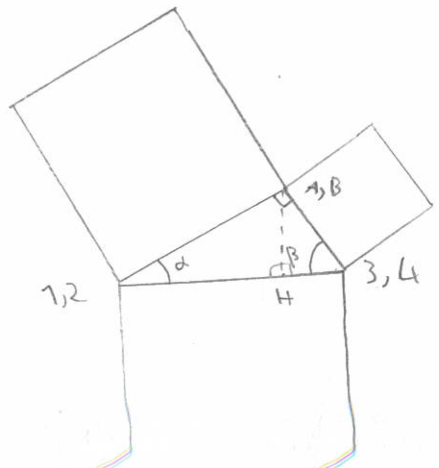


$$\begin{matrix} 1 & a_1 & a_1^2 & 1 & a_1 \\ 1 & a_2 & a_2^2 & 1 & a_2 \\ 1 & a_3 & a_3^2 & 1 & a_3 \end{matrix}$$

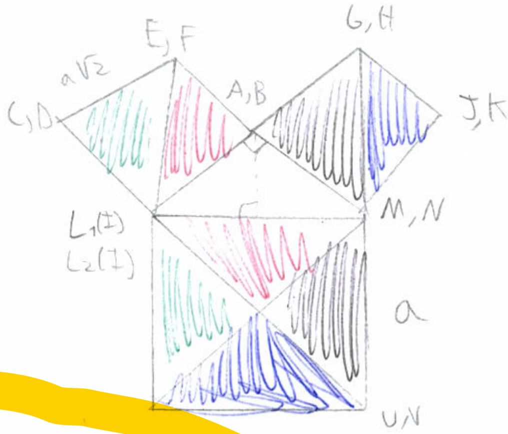
$a_2 a_3^2 + a_1 a_2^2 + a_1^2 a_3 - a_2 a_1^2 - a_3 a_2^2 - a_3^2 a_1$

A = ~~ast~~ abscisse hauteur − différence entre y de droite et y hauteur

x_H ? y_H = ?



$$\begin{cases} \sin\beta = \dfrac{\sqrt{(B-y_H)^2+(A-x_H)^2}}{\sqrt{(4-y_H)^2+(3-x_H)^2}} = \sqrt{\ldots(A-x_H)^2} \\ \sin\alpha = \dfrac{\sqrt{(B-y_H)^2+(A-x_H)^2}}{\sqrt{(2-y_H)^2+(1-x_H)^2}} \end{cases}$$



$CL - EF = \frac{1}{2} UV$

$c^2 = a^2 + b^2$

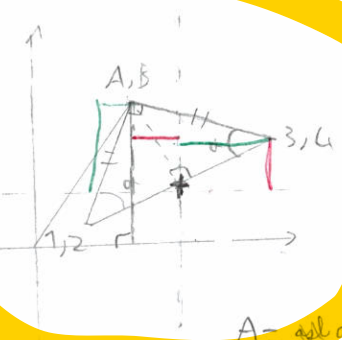
$c = \sqrt{2a^2}$

$c = a\sqrt{2}$

$(a\sqrt{2})^2 = \left(\frac{a}{2}\right)^2 + y^2$

$2a^2 - \frac{a^2}{4} = y^2$

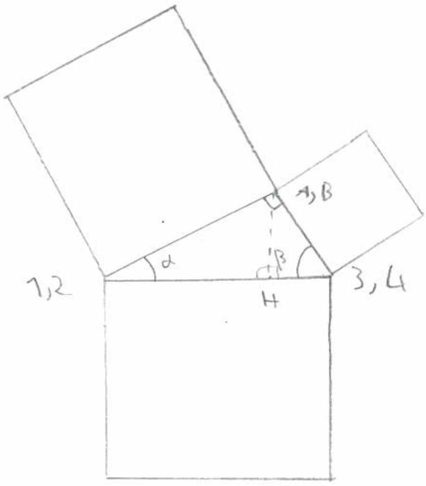
$y = \sqrt{\frac{3a^2}{4}} = \frac{a}{2}\sqrt{3}$



$$\begin{matrix} 1 & a_1 & a_1^2 & 1 & a_1 \\ 1 & a_2 & a_2^2 & 1 & a_2 \\ 1 & a_3 & a_3^2 & 1 & a_3 \end{matrix}$$

$a_2 a_3^2 + a_1 a_2^2 + a_1^2 a_3 - a_2 a_1^2 - a_3 a_2^2 - a_3^2 a_1$

A = ~~ad~~ abscisse hauteur – différence entre y de droite et y hauteur



$x_H ?\quad y_H = ?$

$$\begin{cases} \sin\beta = \dfrac{\sqrt{(B-y_H)^2 + (A-x_H)^2}}{\sqrt{(4-y_H)^2 + (3-x_H)^2}} \\ \sin\alpha = \dfrac{\sqrt{(B-y_H)^2 + (A-x_H)^2}}{\sqrt{(2-y_H)^2 + (1-x_H)^2}} \end{cases}$$

$\sin\alpha = \sin\left(\frac{\pi}{2} - \beta\right) = \cos(\beta)$

$\sqrt{(2-y_H)^2 + (1-x_H)^2} = \sqrt{(4-2)^2 + (3-1)^2} - \sqrt{(4-y_H)^2 + (3-x_H)^2}$

$\sin\beta \sqrt{(4-y_H)^2 + (3-x_H)^2} = \cos\beta \lVert 1234 \rVert - \cos\beta \sqrt{(4-y_H)^2 + (3-x_H)^2}$

$\sqrt{\dots} \, (\cos\beta + \sin\beta) = \cos\beta\,(1234)$

$(4-y_H)^2 + (3-x_H)^2 = \dfrac{\cos^2\beta\,(1234)^2}{\sin(2\beta)} = X$

$y_H = -\sqrt{X - (3-x_H)^2} + 4$

$x_H = -\sqrt{X - (4-y_H)^2} + 3$

$x_H^2 =$

$x_H^2 = X - (4-y_H)^2 - 6\sqrt{X - (4-y_H)^2} + 9$

$y_H = -\sqrt{X - (3 - X + (4-y_H)^2 + 6\sqrt{X-(4-y_H)^2} - 9)} + 4$

$y_H = -\sqrt{2X + B}$

$\times$ $\arg(A+Bi) - \arg(1+2i) = \alpha$

$\arg(A+Bi-(1+2i)) - \arg(3+4i-(1+2i)) = \alpha$

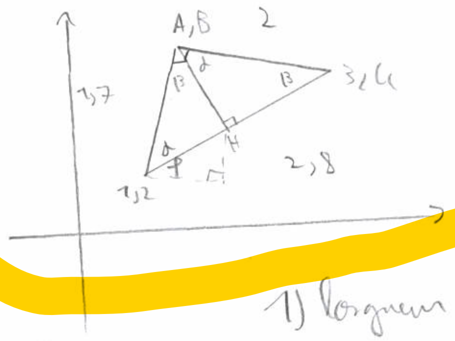
$\arg(A+Bi) = \varphi$

$\arg(A+Bi) = \theta_1$

$\arg(A+Bi) = \theta_2$

$\theta_1 = \theta_2$

arg



$\tan\alpha = \frac{ABH}{1234}$

1) longueur ABH

$= 1234 \times \cos(\alpha)$

2) distance 12 H

$= \frac{ABH}{\tan\alpha}$

$a_1 = \frac{B-2}{A-1}$

$y_2 = a_2 x + b_2$

$a_2 = \frac{B-4}{4-3}$

$b_2 = 4 - a_2 3$

$y_1 = a_1 x + b_1$

$b_1 = 2 - a_1 1$

3) angle au sol φ

$\arg(3+4i-(1+2i))$

$\tan\alpha = \frac{ABH}{12H}$

$\cos\varphi = \frac{x}{12H}$

4) décalage en x de H

$= \cos\varphi\ 12H$

5) décalage en y

$= \sin\varphi\ 12H$

$y_1 = y_2$

$a_1 x + b_1 = a_2 x + b_2$

$a_1 x - a_2 x = b_2 - b_1$

$x = \frac{b_2 - b_1}{a_1 - a_2}$

$y = a_1\left(\frac{b_2-b_1}{a_1-a_2}\right)$

$-\frac{7}{900}x^2 + \frac{1}{10}x - \frac{7}{4}$

$\cos\alpha = \frac{H12}{AB12}$

$y_1 = \overbrace{\frac{y_H - 2}{x_x - 1}}^{a_1} x + b_1$

$b_1 = 2 - 1a_1$ $\quad 1$

$y_1 = \frac{y_H-2}{x_x-1} x + 2 - \frac{(y_H-2)1}{x_x-1}$

$Y_H = \left(\frac{y_H-2}{x_x-1}\right)(x-1) + 2$

$\rightarrow Y_H = \left(\frac{y_H-2}{x_x-1}\right)(x_x-1) + 2$

$y_H - 2 = \frac{y_H x_x \cancel{-y_H} - y_H 1 - 2x_x + 2 \cdot 1}{x_x - 1}$

$y_1 = a_1 x_1 + b_1$

$a_1 = \frac{B-2}{A-1}$

$b_1 = 2 - a_1 1$

$x = \frac{y_H - b_1}{a_1}$

$y = y_H$

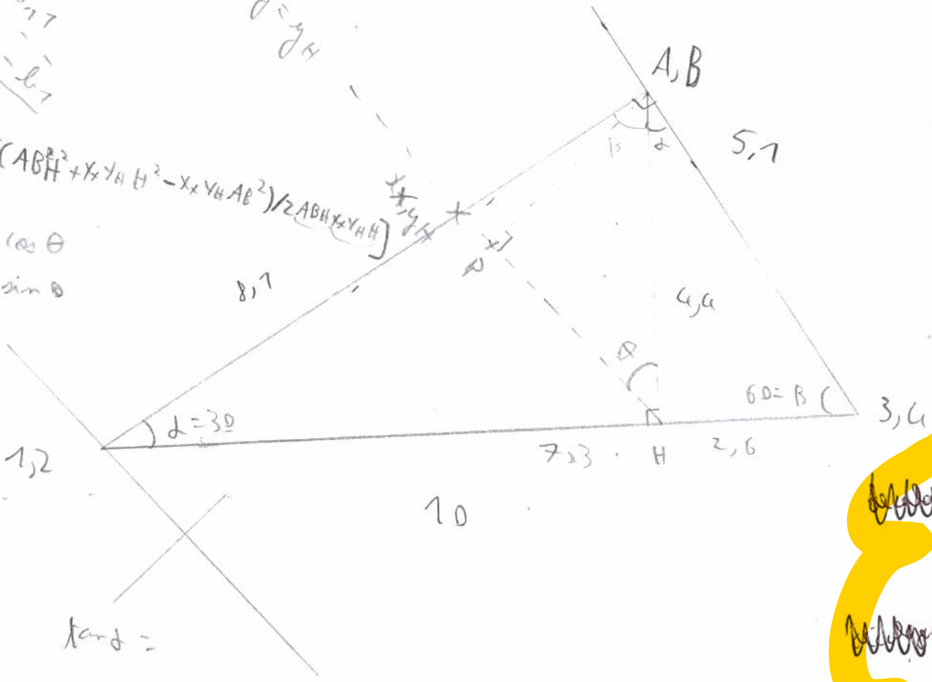
$\theta = \arccos[(ABH^2 + x_x y_H H^2 - x_x y_H AB^2)/2ABH x_x y_H]$

$PH = ABH \cos\theta$

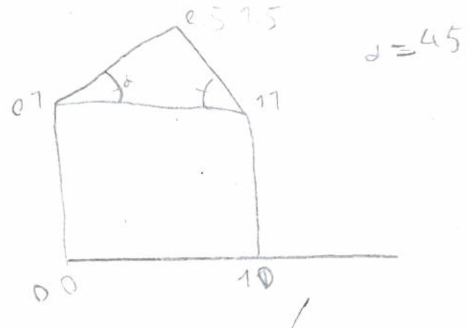
$ABP = ABH \sin\theta$

$A = x_H - PH$

$B = y_H + ABP$



$\tan\alpha =$



$\alpha = 45$

$A = \frac{1}{2} bH =$

$\tan\alpha = \frac{BH}{H12}$

$\tan\beta = \frac{BH}{1234 - H12}$

$\tan(\frac{\pi}{2} - \alpha) = \frac{y_H}{1234 - H12}$

$H12 \tan\alpha = (1234 - H12)\tan(\frac{\pi}{2} - \alpha)$

$H12 \tan\alpha + H12 \tan(\frac{\pi}{2} - \alpha) = 1234 \tan(\frac{\pi}{2} - \alpha)$

$H12 = \frac{1234 \tan(\frac{\pi}{2} - \alpha)}{\tan\alpha + \tan(\frac{\pi}{2} - \alpha)}$

$ABH = \tan\alpha \, H12$

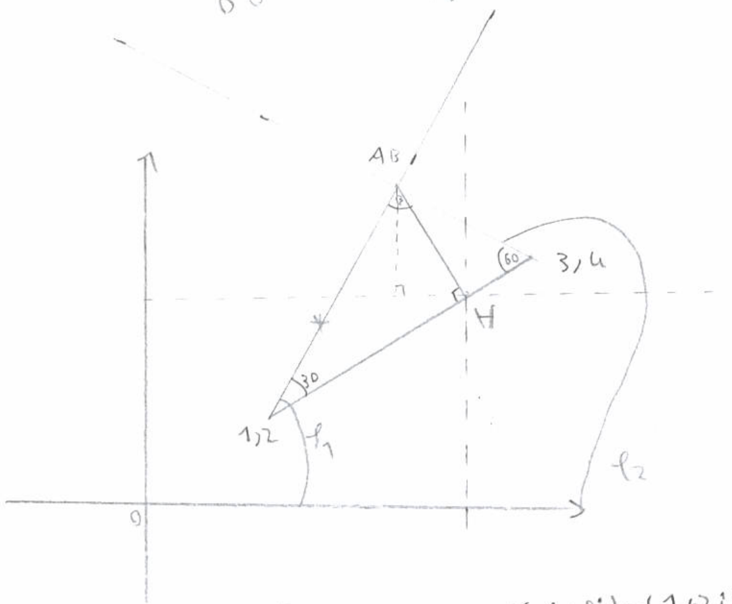
à plat : ✓

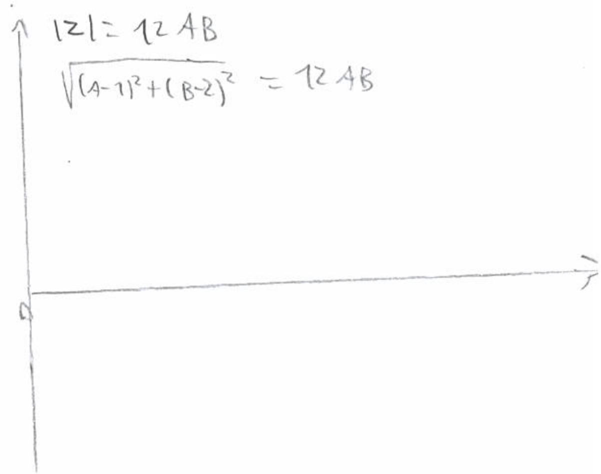
$12AB = \sqrt{12H^2 + ABH^2}$

$z = A + Bi - (1+2i)$

$|z| = 12AB$

$\sqrt{(A-1)^2 + (B-2)^2} = 12AB$





$(\overrightarrow{12,34}, \overrightarrow{12,AB}) = \alpha = \arg((A+Bi)-(1+2i)) - \arg((1+2i)-(3+4i))$

$z = A-1 + (B-2)i$

$\arg(z) = \alpha + \arg(1-3+(2-4)i)$

$|z| = ?$

$\alpha \to$ angle

a, b tel que $a + b = \alpha$

alors

$\cos(a) - \sin(b) = \cos\alpha$

Soient $a = AxH$, $b = ByH$

$a^2 + b^2 = ABH^2$

~~$(x_H - A)^2 + (y_H - \ldots)^2 = ABH^2$~~

$$\begin{cases} (x_H - A)^2 + (y_H - B)^2 = ABH^2 & (1) \\ (1 - A)^2 + (2 - B)^2 = AB12^2 & (2) \end{cases}$$

(2) $1^2 - 2 \cdot 1 A + A^2 = AB12^2 - (2-B)^2$

$A^2 - 2 \cdot 1 A + \underbrace{1^2 - AB12^2 + (2-B)^2}_{c}$

$\Delta_1 = 4 \cdot 1^2 - 4c$

$A_1 = \dfrac{2 \cdot 1 - \sqrt{\Delta_1}}{2} = 1 - \sqrt{1^2 - c}$

$A_2 = 1 + \sqrt{1^2 - c}$

dans (1) : $x_H^2 - 2 \cdot 1 - 2\sqrt{1^2 - c} + 1^2 - 2 \cdot 1\sqrt{1^2 - c} + 1^2 - c$

$+ y_H^2 - 2 y_H B + B^2 = ABH^2$

$-2\sqrt{AB12^2 - (2-B)^2} - 2 \cdot 1\sqrt{AB12^2 - (2-B)^2} - 1^2 + AB12^2 + (2-B)^2$

$+ x_H^2 - 2 \cdot 1 + 2 \cdot 1^2 + y_H^2 - 2 y_H B + B^2 = ABH^2$

Cam 8.5

Ex 6

$(4-2)^2 + (3-1)^2 = (B-2)^2 + (A-1)^2 + (B-4)^2 + (A-3)^2$

$= B^2 - 2 \cdot 2B + 2^2$

$A^2 - 2 \cdot 1A + 1^2$

$B^2 - 2 \cdot 4B + 4^2$

$A^2 - 2 \cdot 3A + 3^2$

$(4-2)^2 + (3-1)^2 - 1^2 - 2^2 - 3^2 - 4^2 = 2B^2 + 2A^2$

$M_x = 1 + x\cos(\varphi_1)$ $\qquad \vec{OM} =$

$M_y = 2 + y\sin(\varphi_1)$

$$\begin{cases} 1 + x\cos(\varphi_1) = 3 + x\cos(\varphi_2) \\ 2 + y\sin(\varphi_1) = 4 + y\sin(\varphi_2) \end{cases}$$

$x(\cos(\varphi_1) + \cos(\varphi_2)) = 3 - 1$

$x = \dfrac{3-1}{\cos(\varphi_1) + \cos(\varphi_2)}$ $\qquad y = \dfrac{4-2}{\sin(\varphi_1) - \sin\varphi_2}$