



Los puntos en negros son los límites del lugar buscado cuando P recorre CB

$$P = tB + (1-t)C \quad 0 \leq t \leq 1$$

$$M = \frac{A+B}{2}$$

$$CN = \frac{CB}{PB} PM \Rightarrow N = C + \frac{CB}{PB} PM$$

$$\frac{P+N}{2} = \frac{P + C + \frac{CB}{PB} PM}{2} = (x, y)$$

Si ponemos:  $C = (0,0)$ ;  $B = (a,0)$ ;  $A = (m,n) \Rightarrow \frac{CB}{PB} = \frac{a}{a-at} = \frac{1}{1-t}$

y entonces  $(x,y) = \frac{(at,0) + \frac{1}{1-t} \left[ \frac{(m,n) + (a,0)}{2} - (at,0) \right]}{2}$  ;

$$x = \frac{m + a(1-2t^2)}{4(1-t)}; \quad \frac{y}{n} = \frac{1}{4(1-t)}; \quad t = 1 - \frac{n}{4y} \quad 0 \leq t \leq 1$$

$$x = \frac{y}{n} \left[ m + a - 2a \left( 1 - \frac{n}{4y} \right)^2 \right] = \left[ \left( \frac{m-a}{n} \right) y + a - \frac{an}{8y} \right] ; \text{ HIPERBOLA}$$