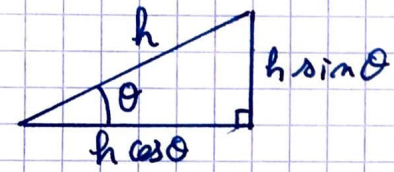
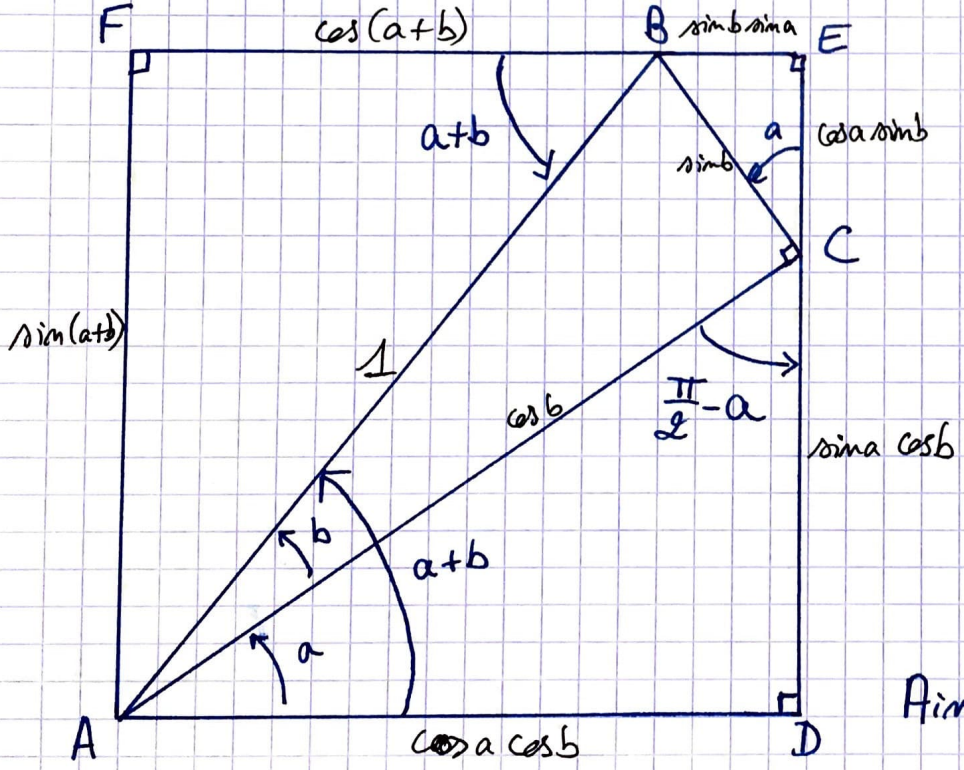
Demo 12 : $\cos(a+b)$ et $\sin(a+b)$





Triangle rectangle ABC :

$AB = 1$ $\quad AC = AB.\cos b = \cos b$

$BC = AB \sin b = \sin b$

Triangle rectangle ADC :

$AD = AC \times \cos a = \cos b . \cos a .$

$DC = AC \times \sin a = \cos b . \sin a$

Triangle rect. ABF :

$AB = 1$, $\quad FB = \cos(a+b) . AB = \cos(a+b)$

$AF = \sin(a+b)$

Triangle rect. BCE :

$CE = BC \cos a = \sin b \cos a$

$BE = BC \sin a = \sin b \sin a .$

Ainsi $FB = FE - BE = AD - BE = \cos a \cos b - \sin a \sin b$

$AF = DC + CE = \sin a \cos b + \cos a \sin b .$