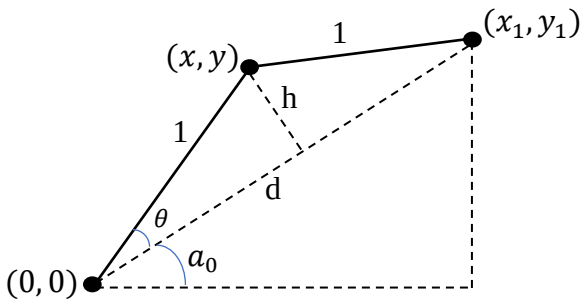

$a_0 = \tan^{-1}\left(\frac{y_1}{x_1}\right)$

Now we have to find distance between (x_1, y_1) and $(0,0)$:

$distance = \sqrt{x^2 + y^2}$

d is half of the distance.

$d = \frac{1}{2}\sqrt{x^2 + y^2}$

Now we use tan, you can use cos also here.

$h^2 + d^2 = 1^2$

$h^2 = 1 - d^2$

$h = \sqrt{1 - d^2}$

$h = \sqrt{1 - \left(\frac{1}{2}\sqrt{x^2 + y^2}\right)^2}$

$h = \sqrt{1 - \frac{1}{4}(x^2 + y^2)}$

$h = \sqrt{\frac{4 - x^2 - y^2}{4}}$

$h = \frac{1}{2}\sqrt{4 - x^2 - y^2}$

$\theta = \tan^{-1}\left(\frac{h}{d}\right)$

$\theta = \tan^{-1}\left[\sqrt{\frac{4 - x_1^2 - y_1^2}{x^2 + y^2}}\right]$

$a_1 = a_0 + \theta$

$a_1 = \tan^{-1}\left(\frac{y_1}{x_1}\right) + \tan^{-1}\left[\sqrt{\frac{4 - x_1^2 - y_1^2}{x^2 + y^2}}\right]$

Our main target is to find (x, y) :

$(x, y) = (cosa_1, \sin a_1)$