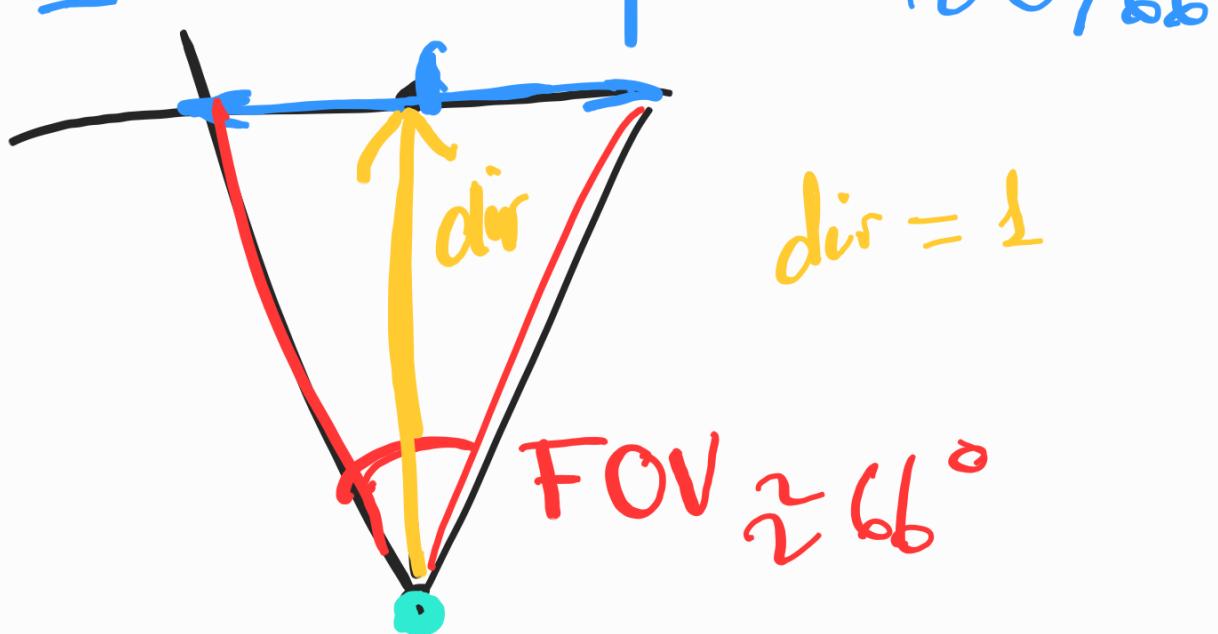


Cube 3d

mlx - loop - hook

↳ appel à chaque frame

FOV: Field of Vision
ratio de la direction et plane



Cosinus :

Longueur du côté adjacent

Longueur hypoténuse

Sinus :

Longueur côté opposé

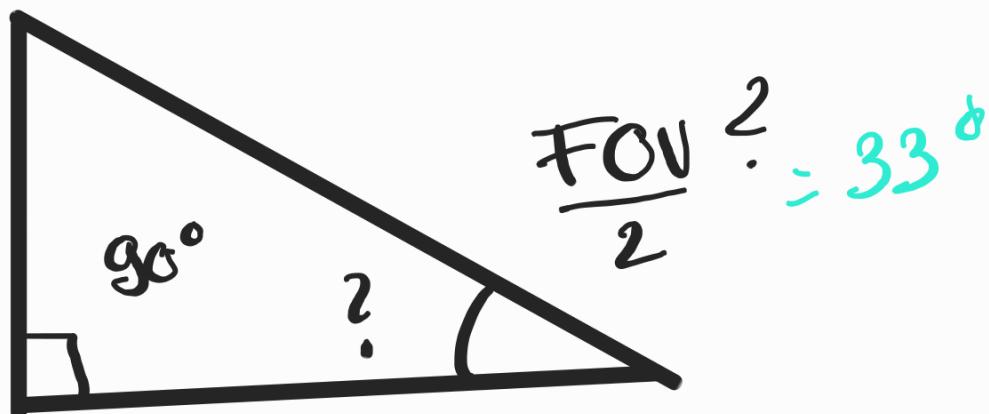
hypoténuse Longueur

Tangente :

Longueur côté opposé

Longueur côté adjacent

plane = 0,66



$$\frac{\widehat{FOV}}{2} = \arctan\left(\frac{0,66}{1}\right)$$

$$= 33^\circ$$

$$= 2 \times 33$$

$$= 66^\circ$$

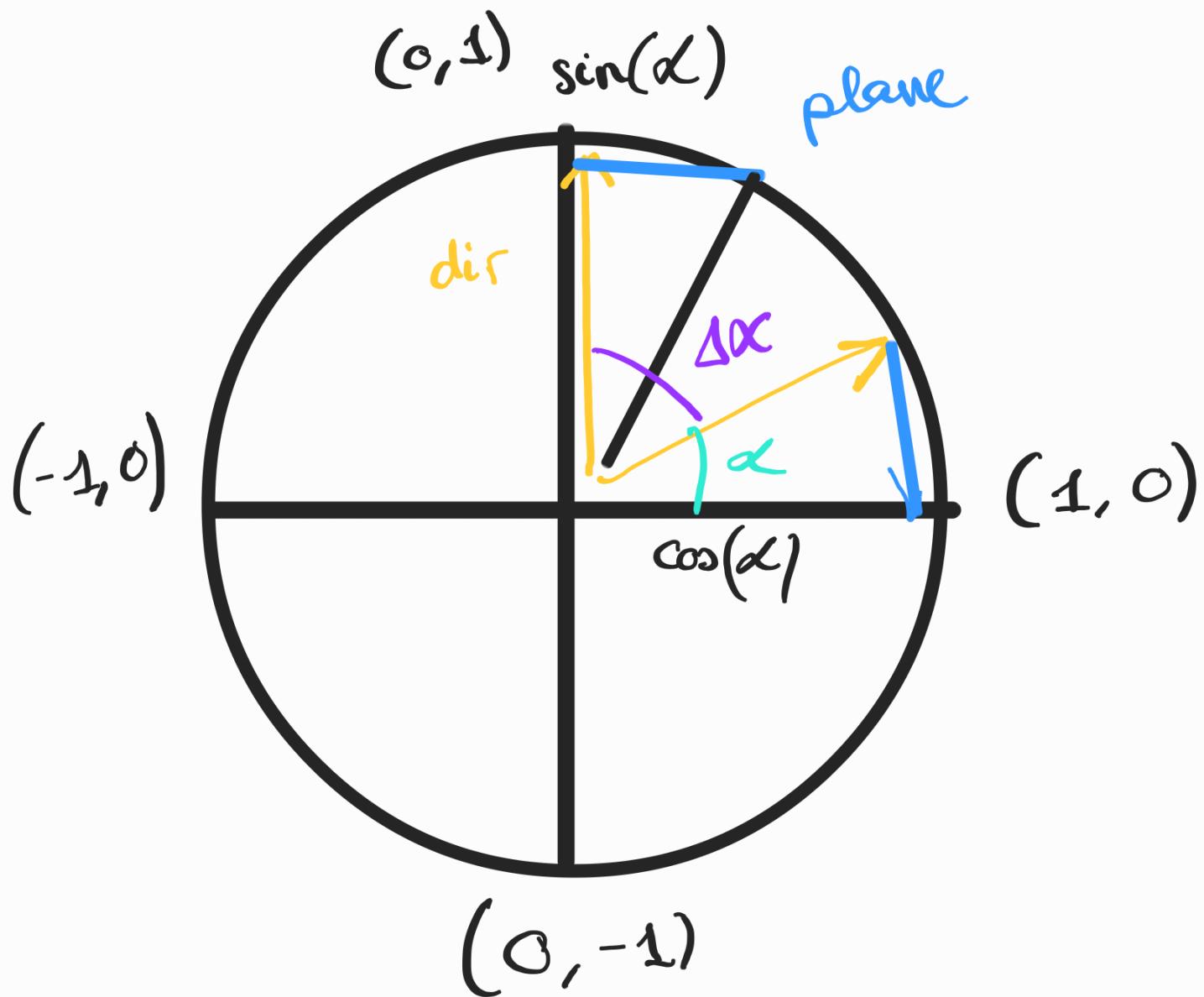
$\tan(\text{FOV}) = \frac{\text{opposite}}{\text{adjacent}}$

0,33

opposite

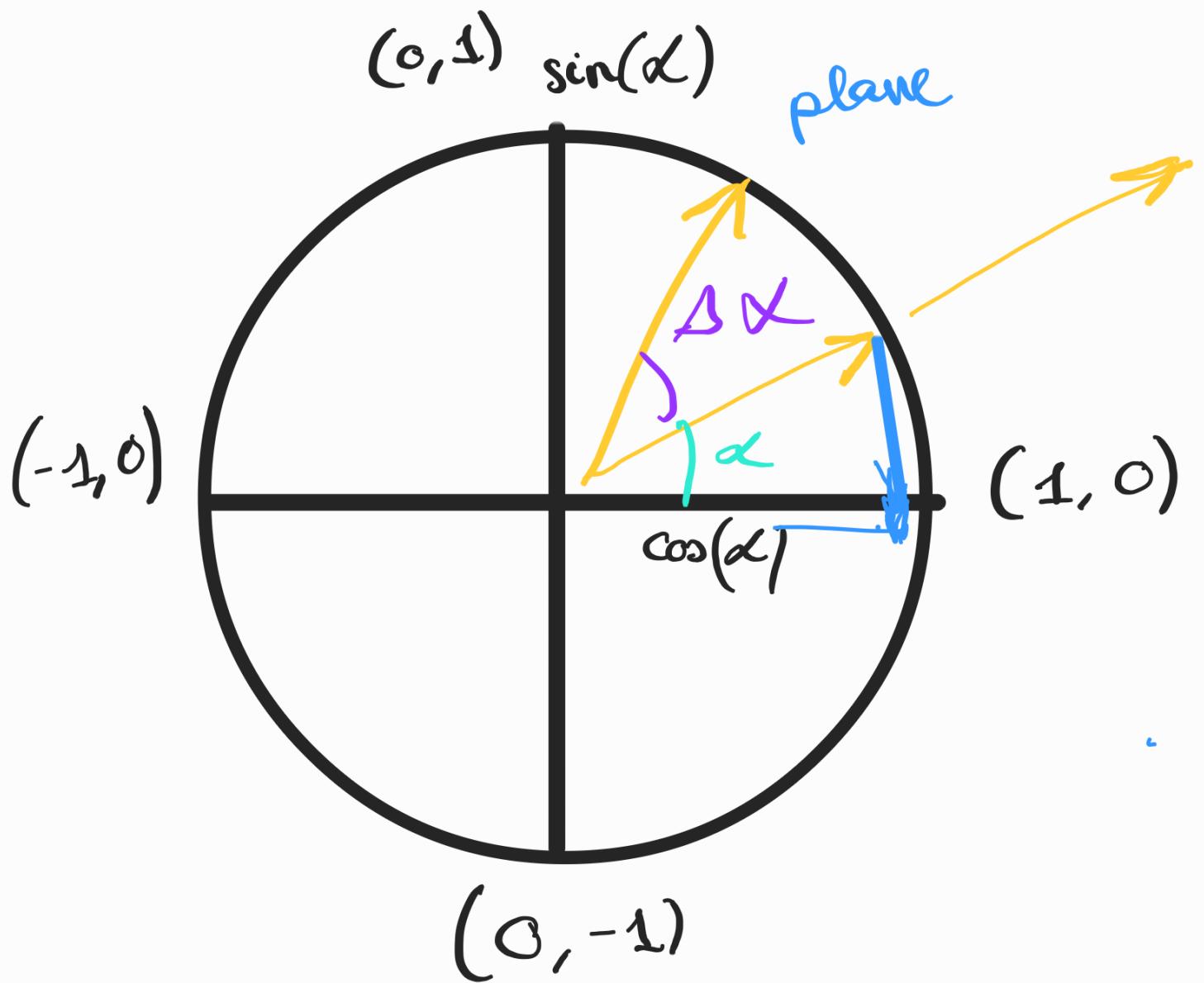
adjacent

Cercle unité



$$\alpha = 33^\circ$$

$$\Delta\alpha = 33^\circ + (90^\circ - 66^\circ)$$



$$\alpha = 33^\circ$$

+ ou -

$$\frac{\sqrt{3}, 1, 2}{2}$$

$$w = 119$$

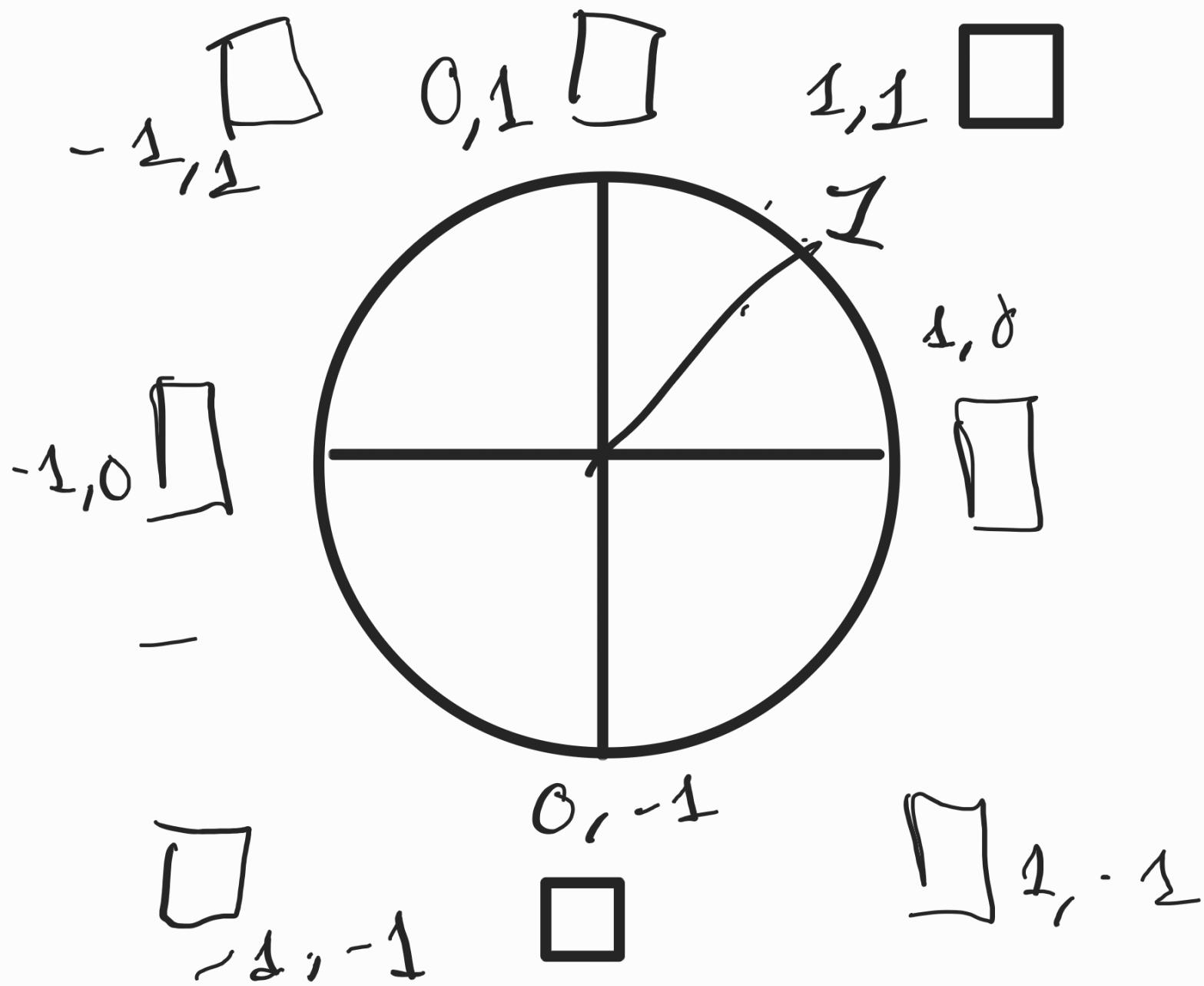
$$q = 97$$

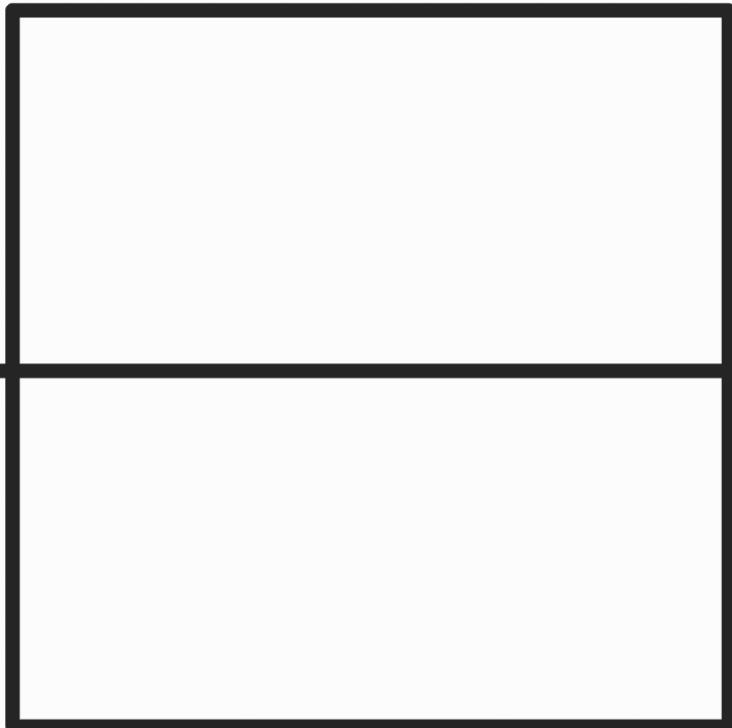
$$s = 115$$

$$d = 100$$

$$\text{dir } Y = \sin(\alpha)$$

$$\text{dir } X = \cos(\alpha)$$



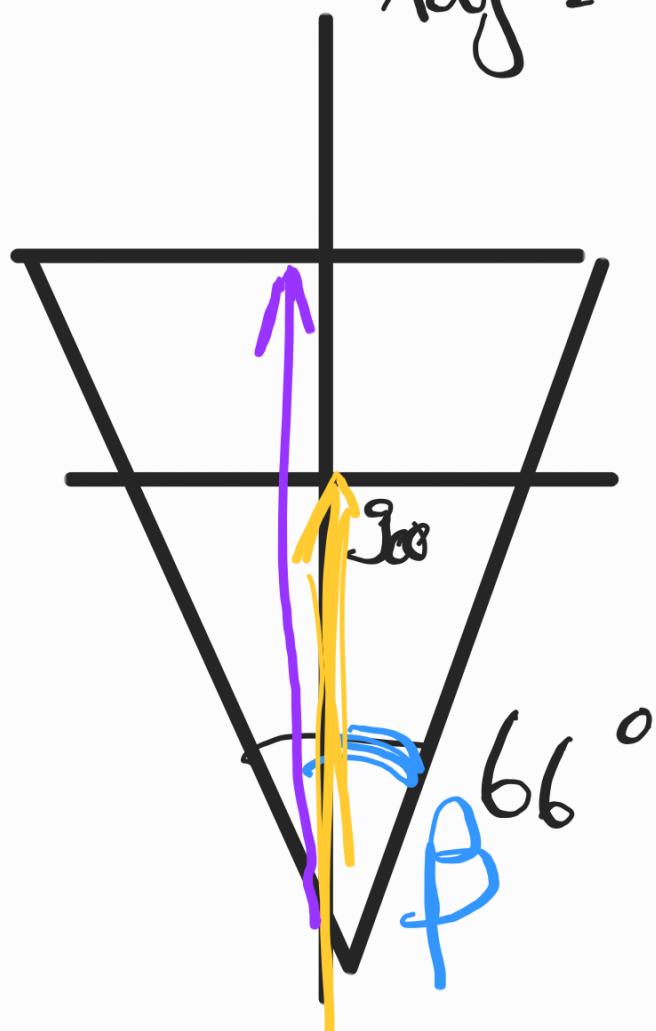


$$= \frac{\text{projected wall height}}{\text{distance to projected wall}} = \frac{\text{actual wall height}}{\text{distance to wall}}$$

TILT
distance

$$\tan = \frac{\text{opposite}}{\text{adjacent}}$$

$$\text{Adj} = \frac{\text{opposite}}{\tan}$$



$$\frac{160 \times 4}{\tan(33)}$$

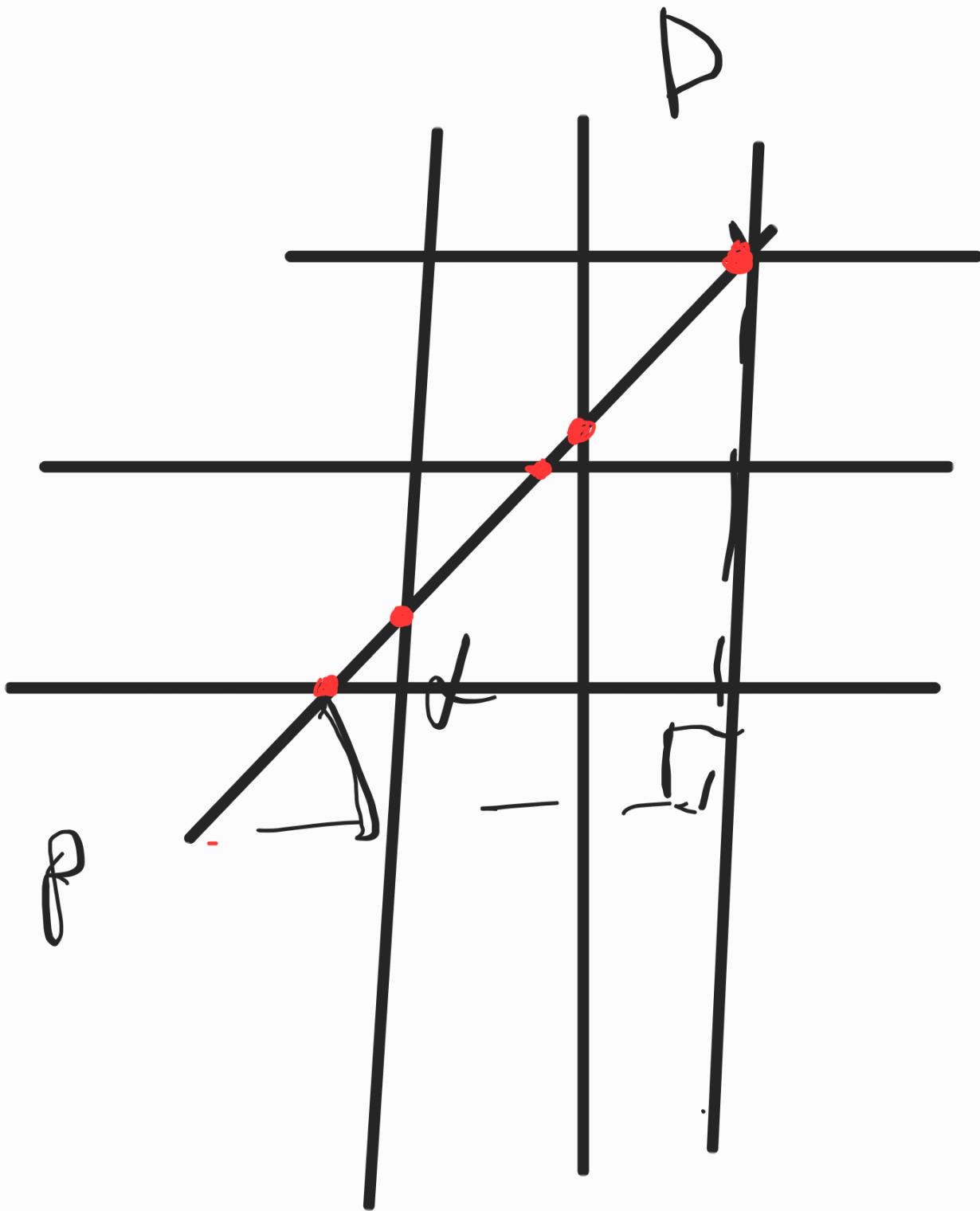
≈ 985

distance

Screen width column = 66°

$$1 = \frac{66}{\text{screenwidth}}$$

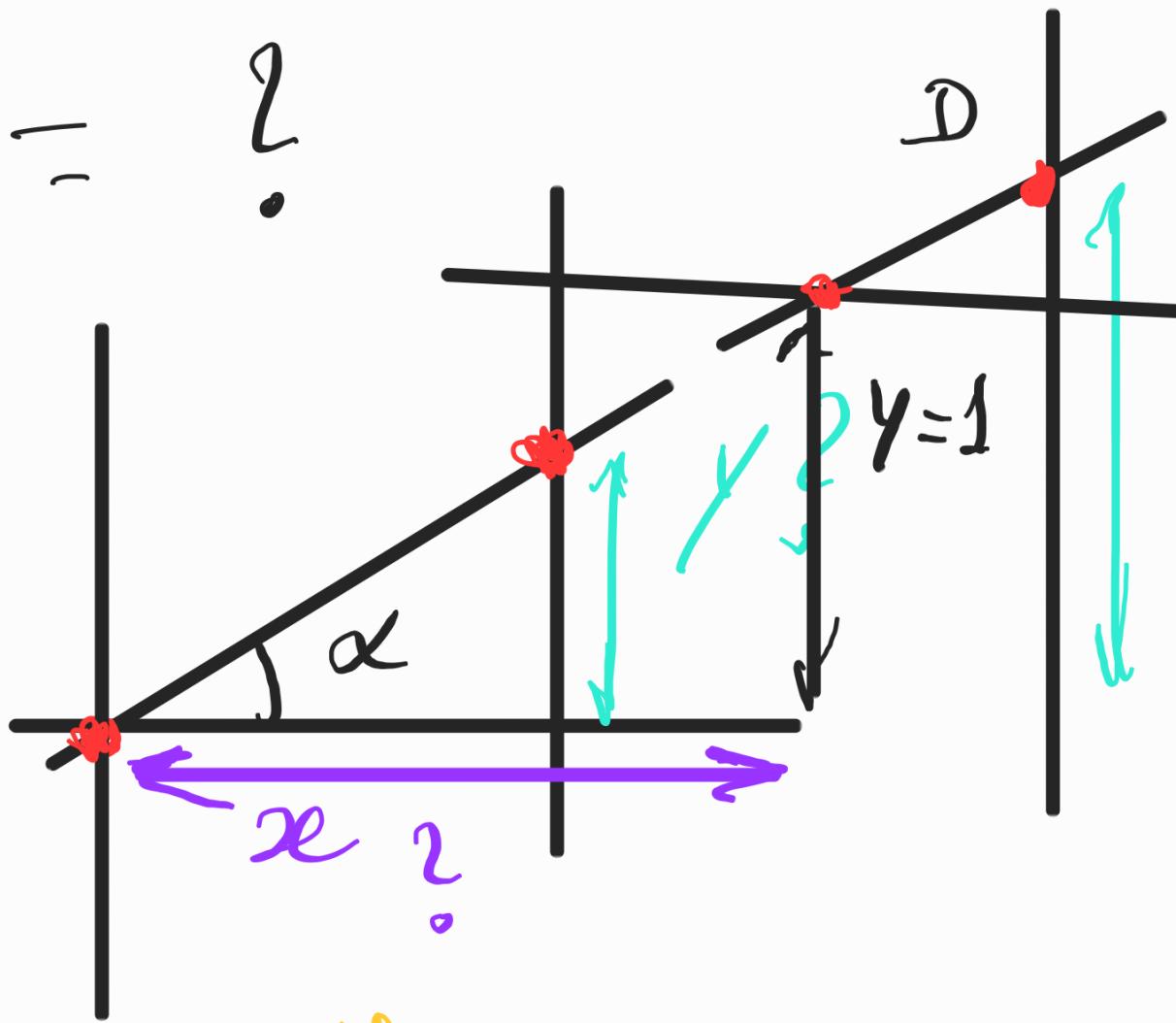
Correct distance =
distorted $\times \cos(\beta)$



$$P_{2e} = 1$$

$$P_y = ?$$

$$P \quad x ?$$



$$\text{TOA} = \frac{\text{adj}}{\text{op}} \quad y$$

int add

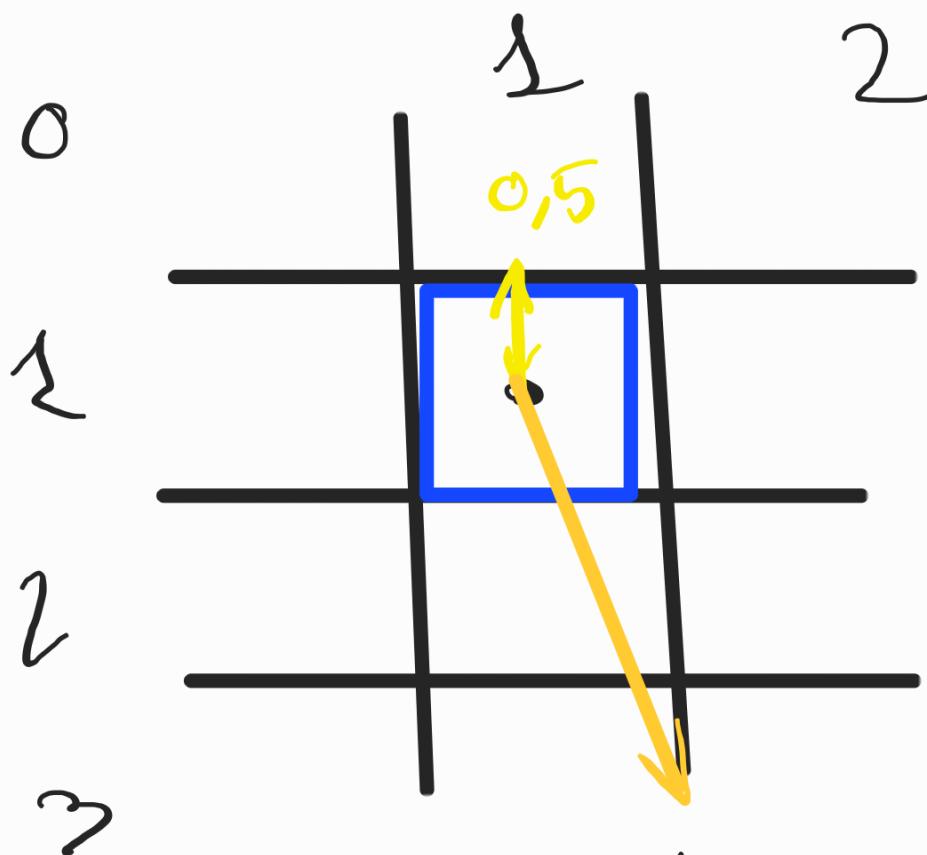
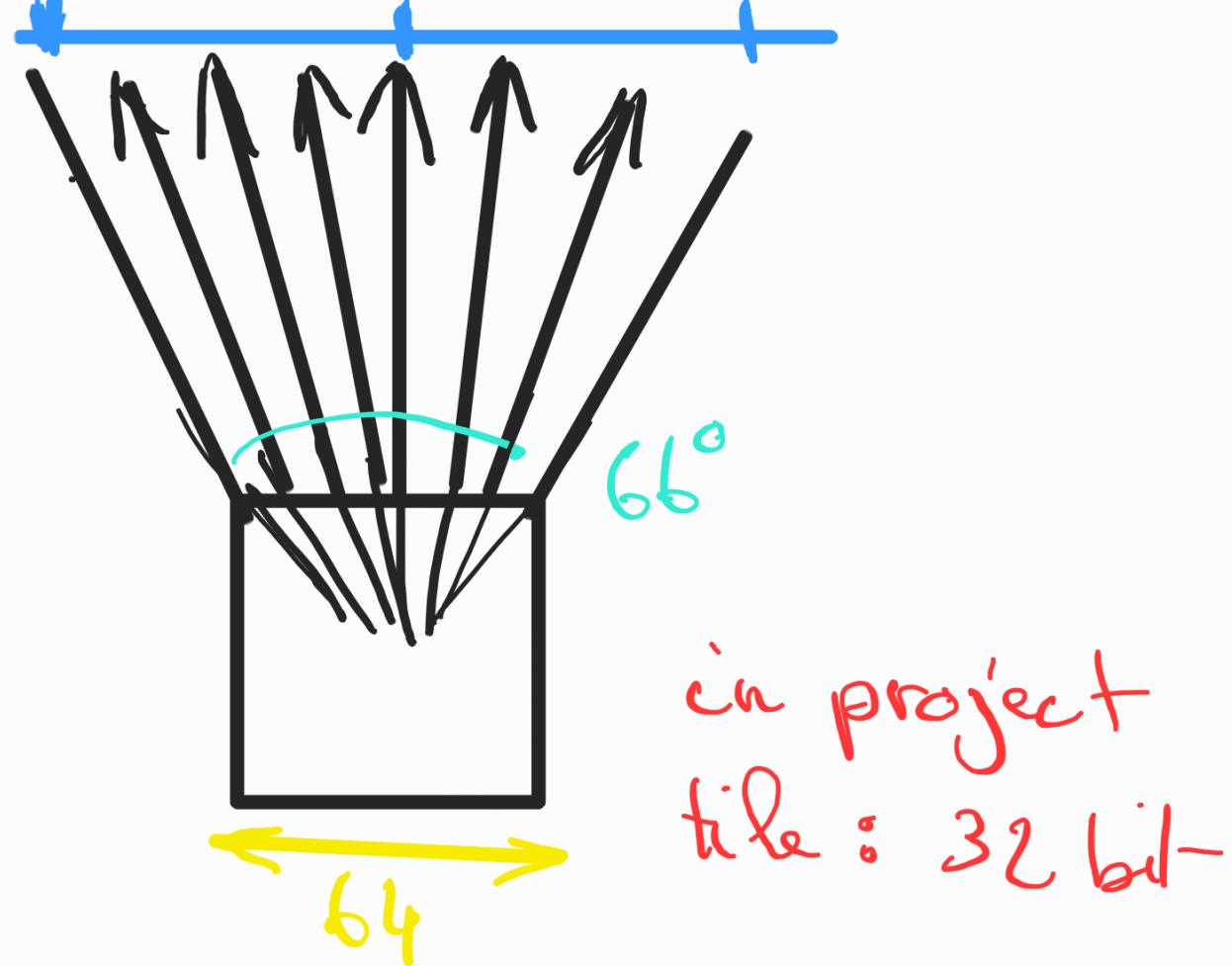
$$\tan(\alpha) = \frac{\text{adj}}{\text{op}} \quad x$$

$$ij \cos < 0 \\ \text{add} = -1$$

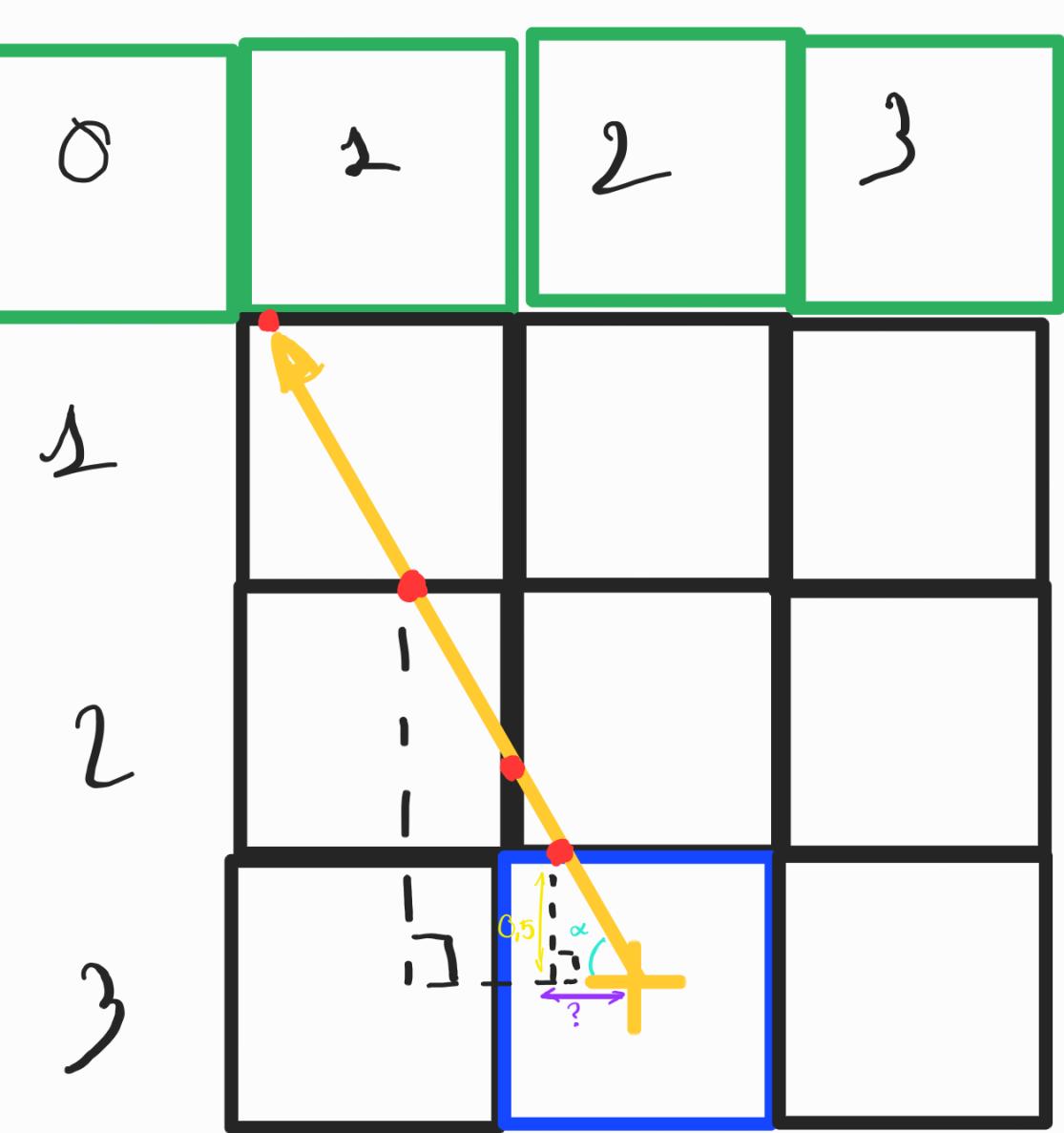
$$y = \tan(\alpha) \times x$$

$$\text{else} \\ \text{add} = 1$$

$$x = \frac{y}{\tan(\alpha)}$$



$\text{pos } x : 1$ $\text{real } x = 1,5$
 $\text{pos } y : 1$ $\text{real } y = 1,5$

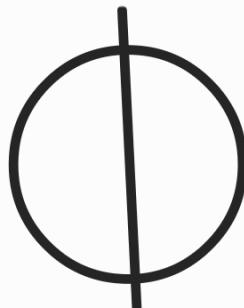


hit.y

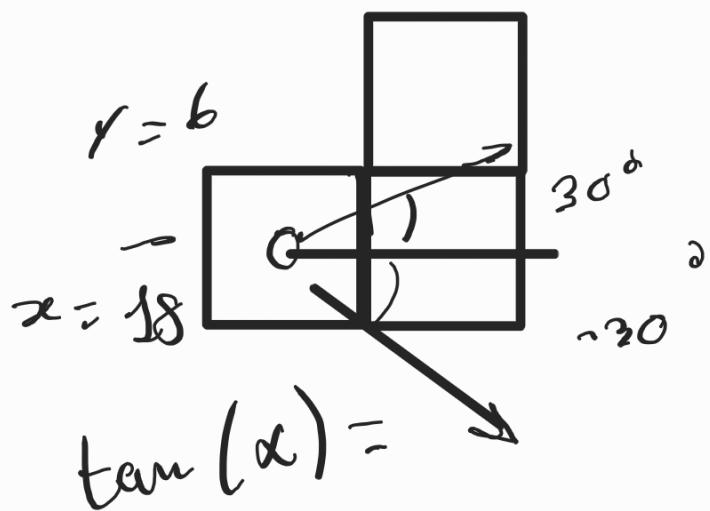
$$\begin{aligned}
 \text{opp.x: } & 2,5 \\
 \text{opp.y: } & 3,5
 \end{aligned}
 \left\{
 \begin{array}{l}
 \text{player} + \frac{\text{TILE}}{2} \\
 0,5
 \end{array}
 \right.$$

$$\text{TOA: } \tan(\alpha) = \frac{\text{opp}}{\text{adj}}$$

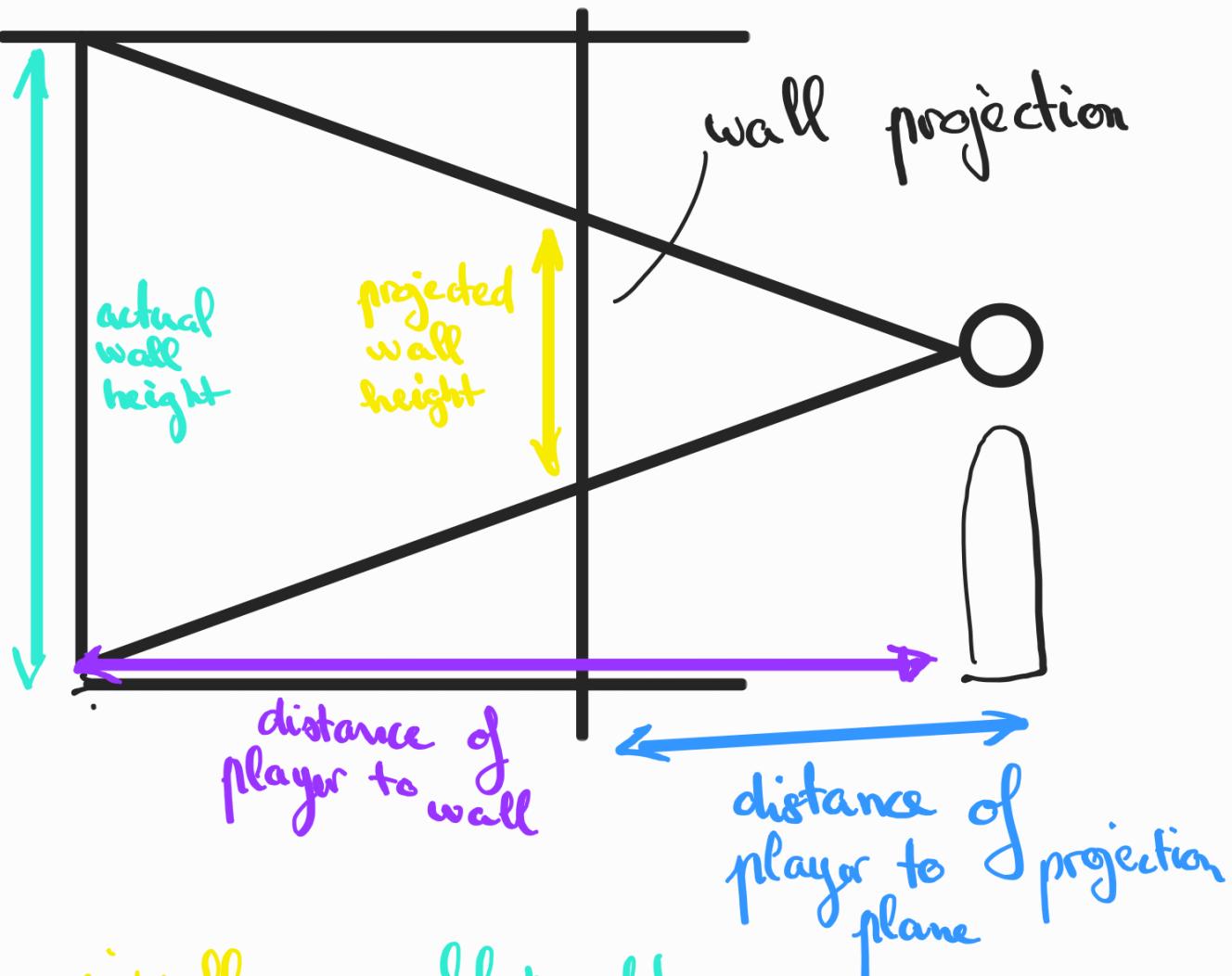
$$x = \frac{0,5 \times \text{TILE}}{\tan(\alpha)}$$



$$\begin{aligned}
 \text{add} &= -1; \\
 x &= 352 \\
 y &= 160 \\
 \text{hit.x} &= 352 + \text{cush} \\
 &= 256 \\
 \text{hit.y} &= y + 1 \times 256 - 352 \\
 &= x \times \tan(-30)
 \end{aligned}$$



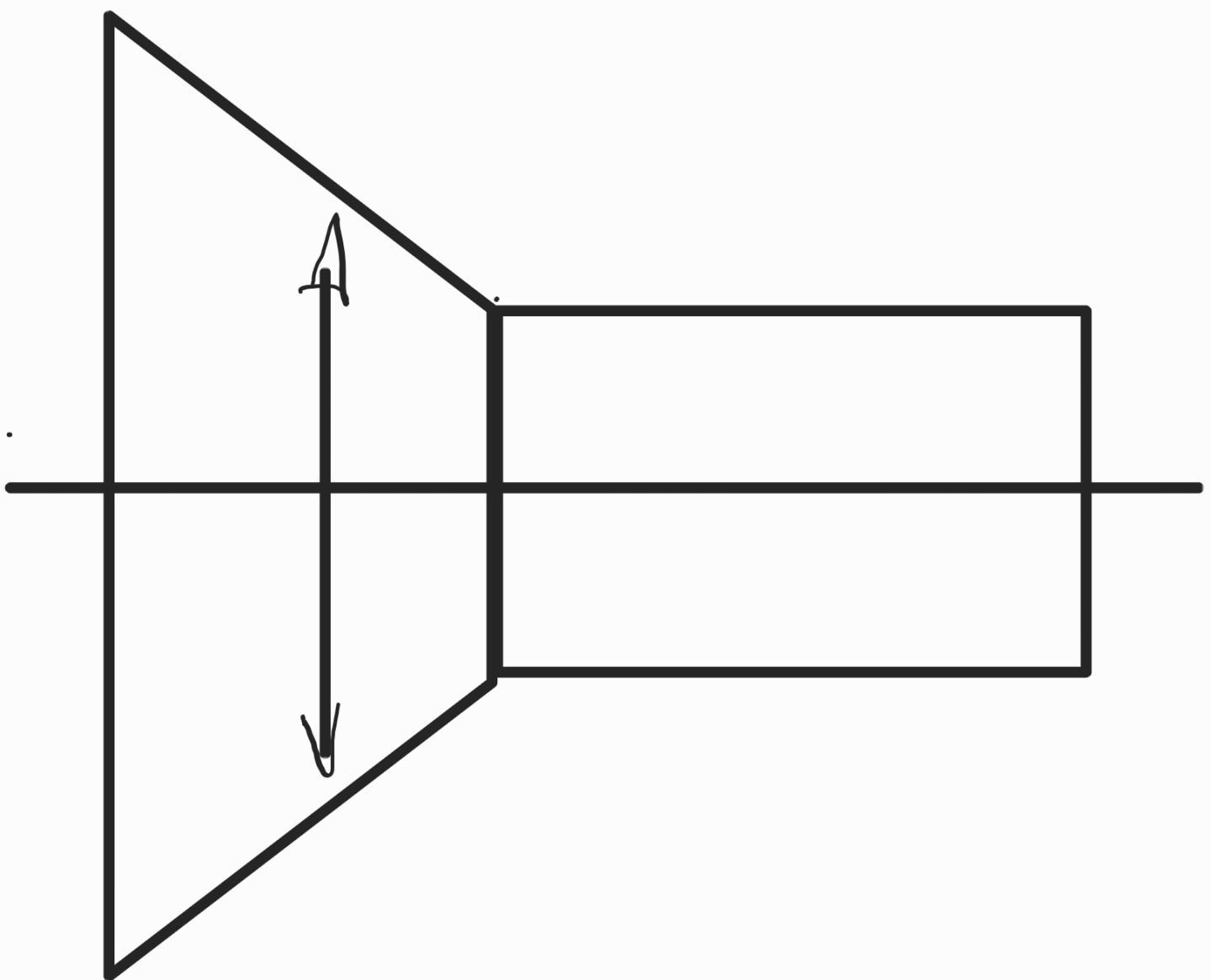
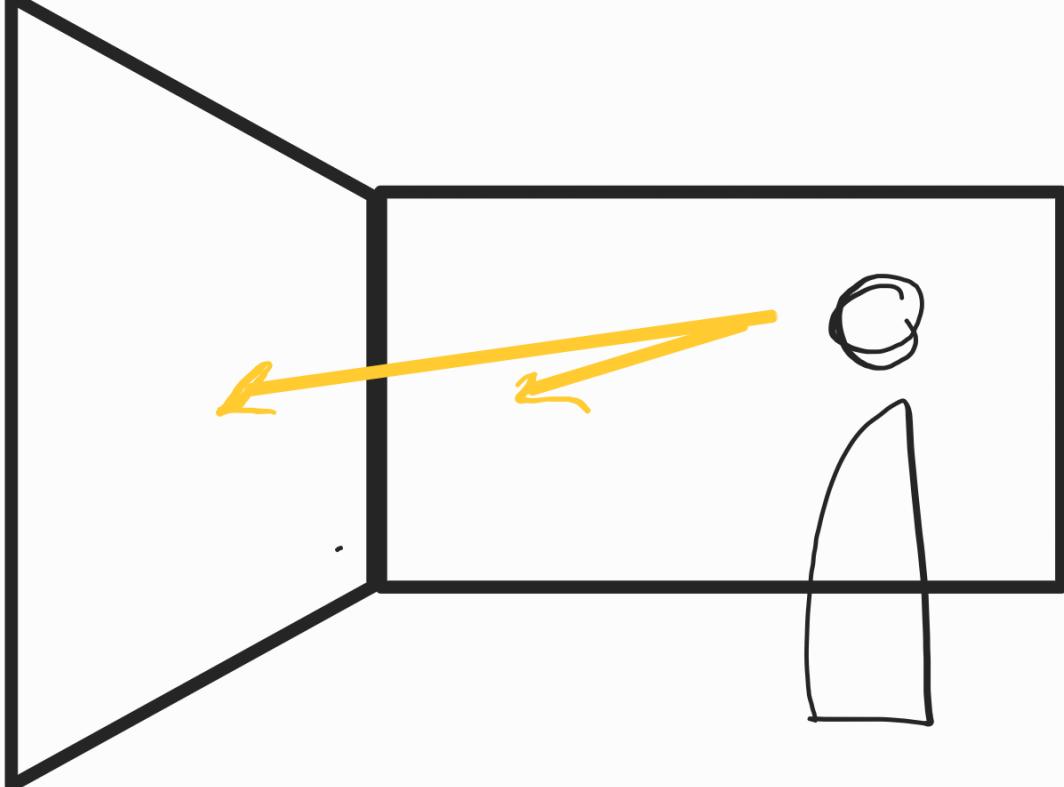
$$\begin{aligned}
 \text{hit.x} & \\
 \text{add} &= 1 \\
 x &= 352 \\
 y &= 160 \\
 \text{hit.y} &= 4 = 256 \\
 \text{hit.x} &= \frac{-560}{\tan(-30)} + x \\
 &= 352
 \end{aligned}$$

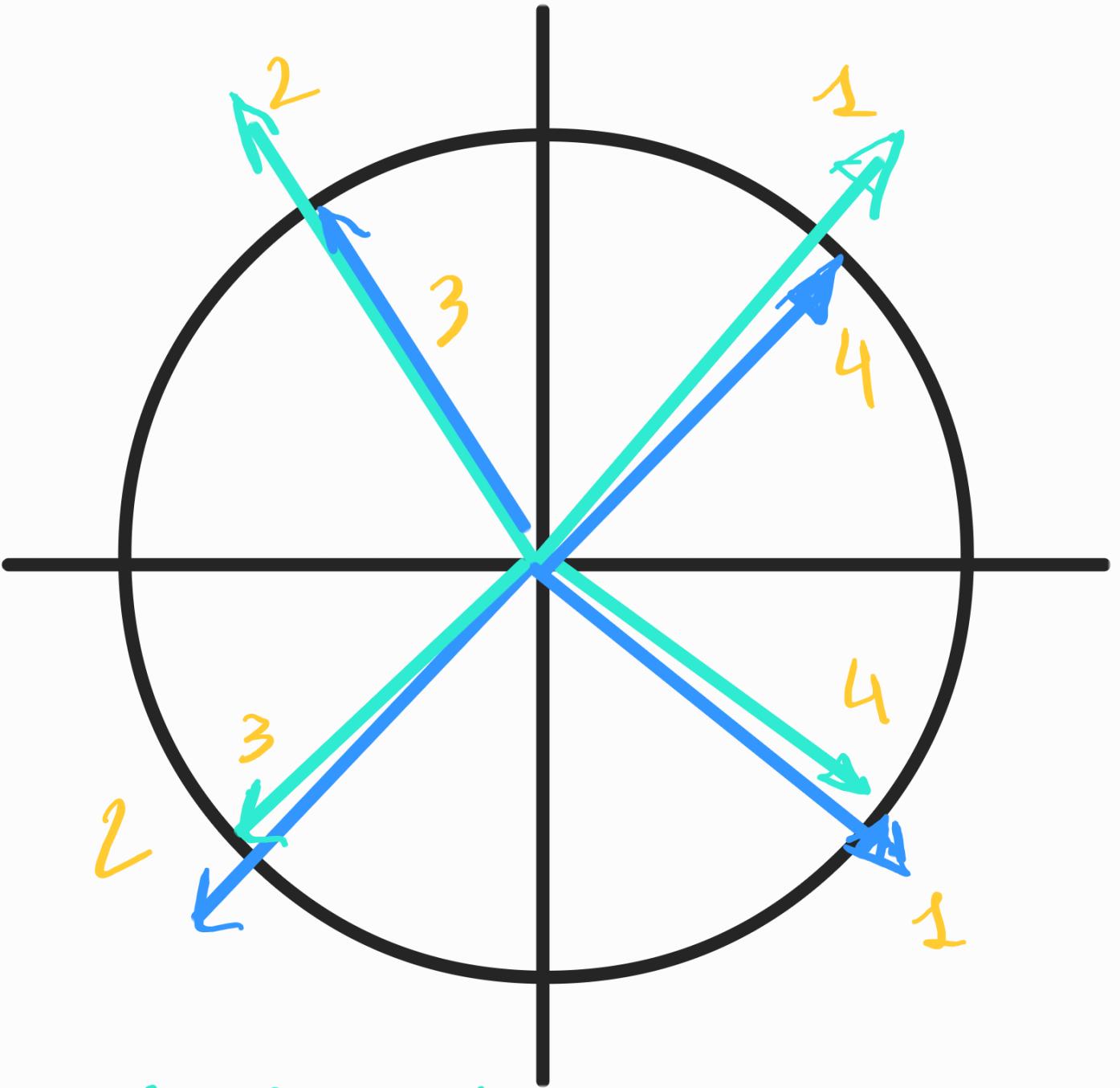


$$\text{proj wall height} = \frac{\text{wall height}}{\text{distance to slice}} \times \text{distance to projection plane}$$

$$\text{proj} = \frac{64}{\text{distance to slice}} \times \frac{560}{\tan(33)}$$

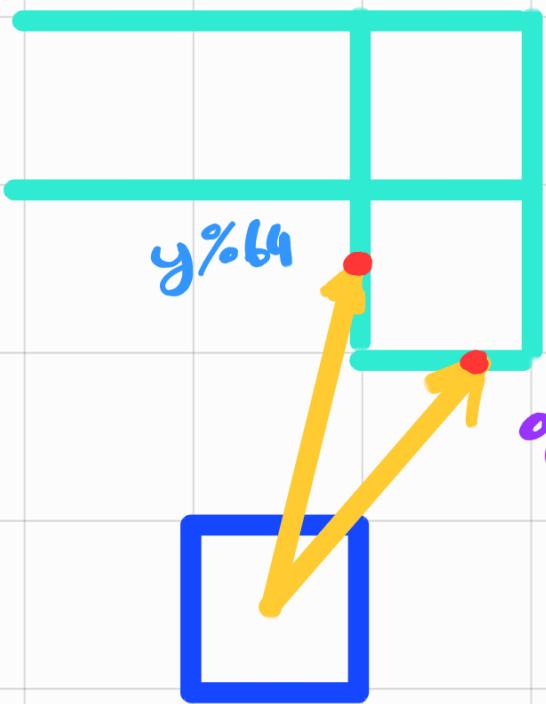
Angle between subsequent rays = $\frac{60}{320}$



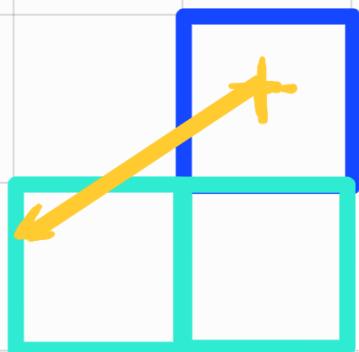
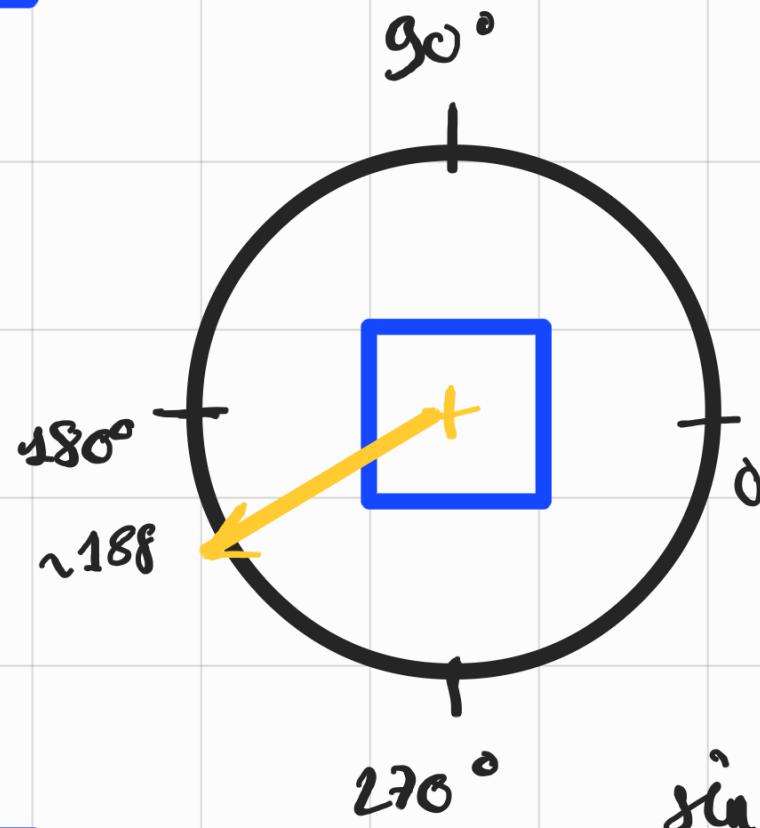


find-tile-y : expected result

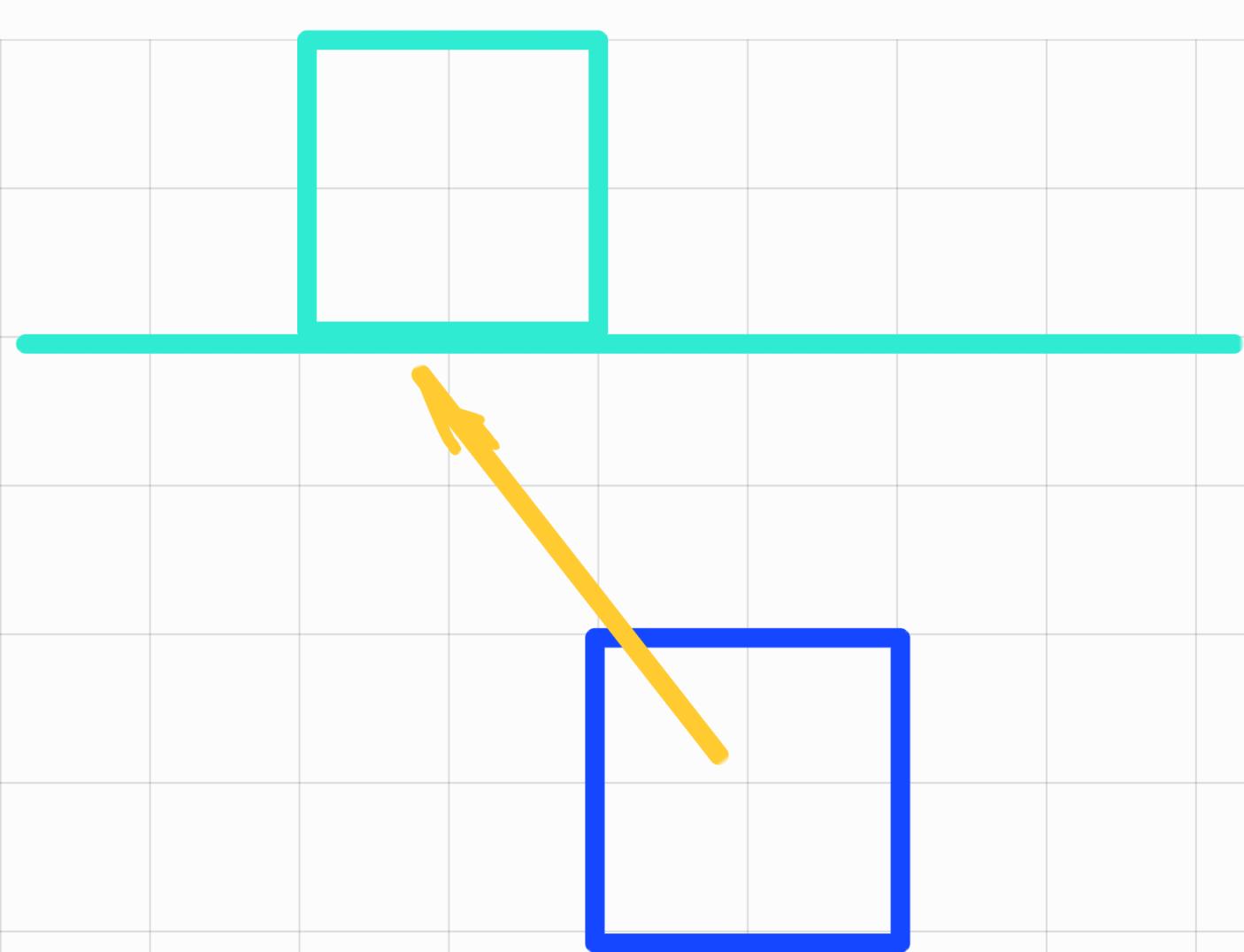
same pour
find-tile-x



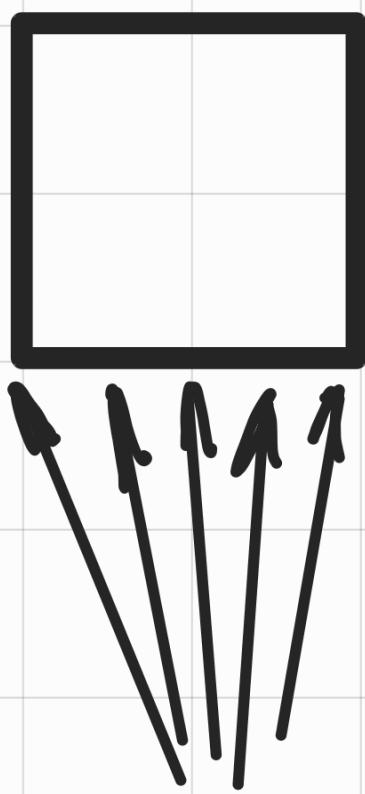
psychopathe

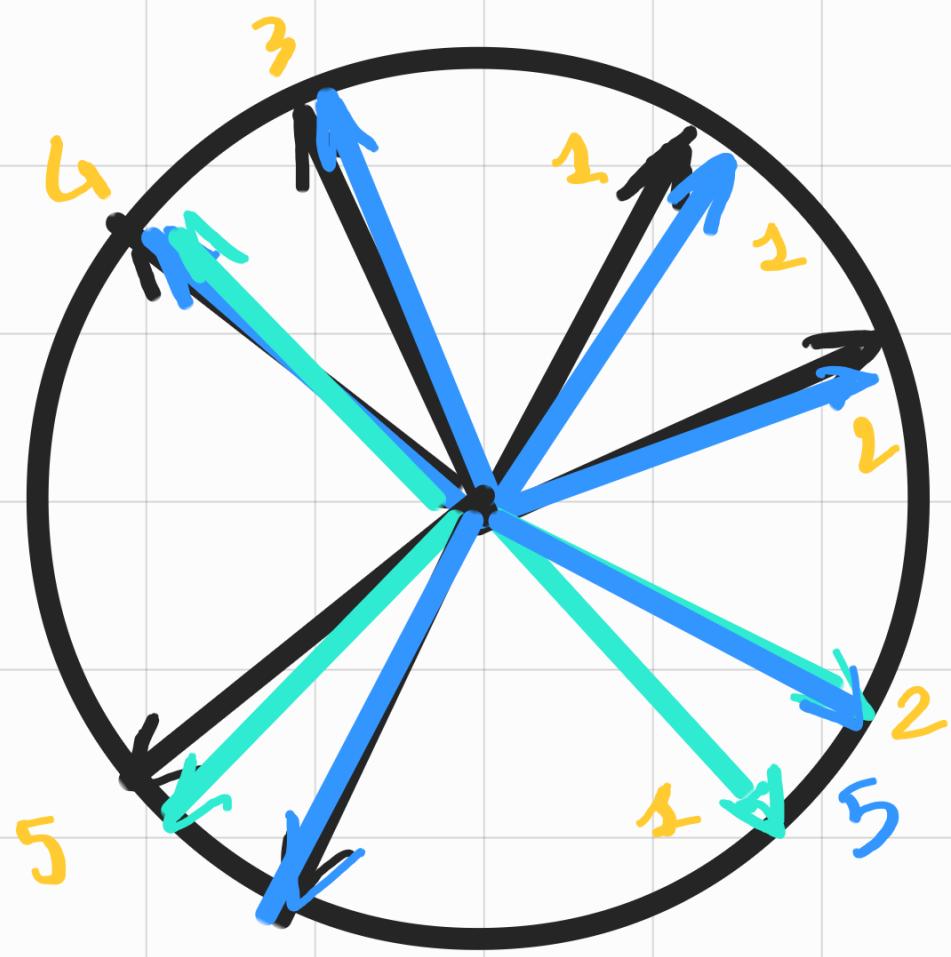
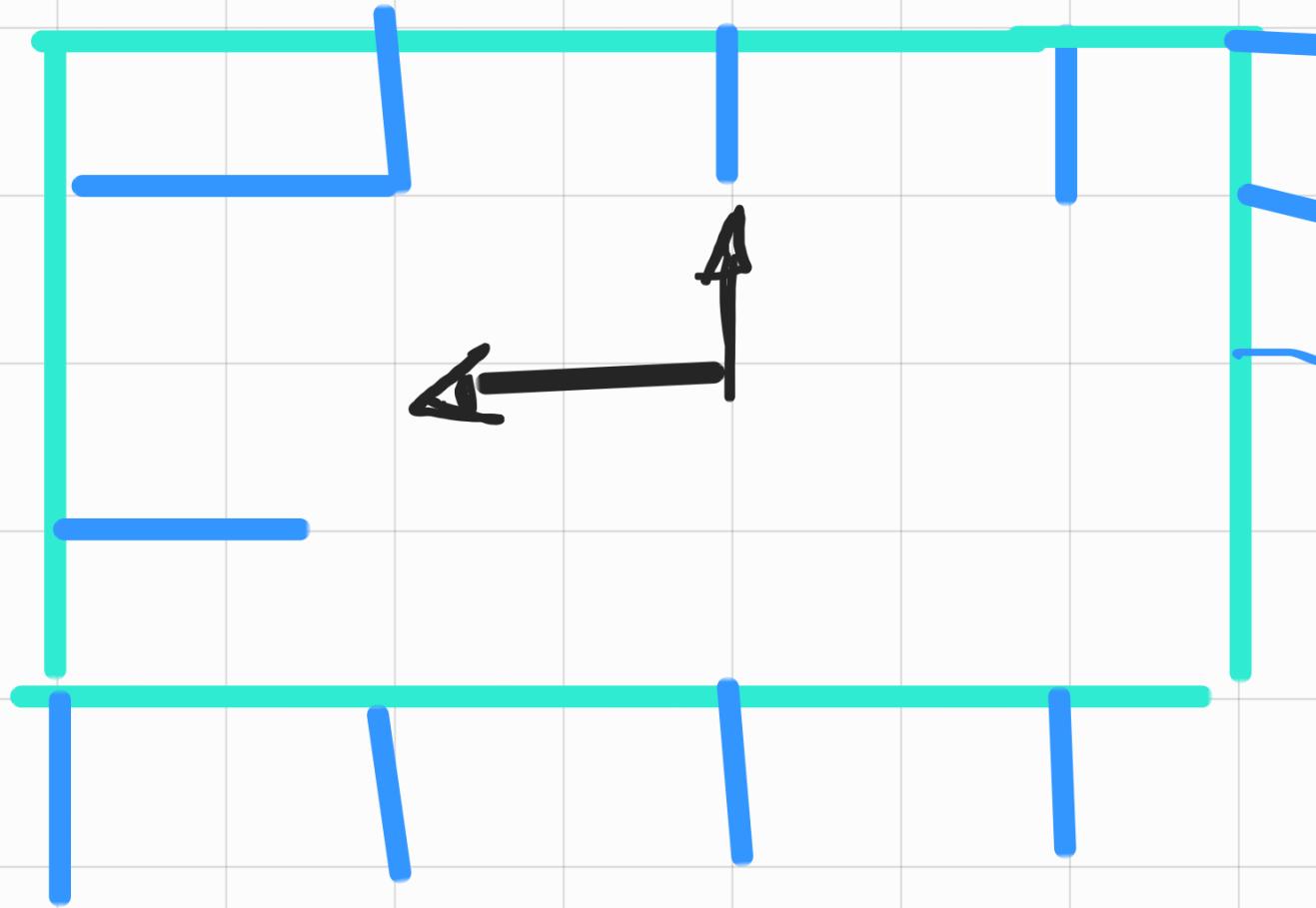


$$\sin(\alpha) = \frac{\text{opp}}{\text{hyp}}$$

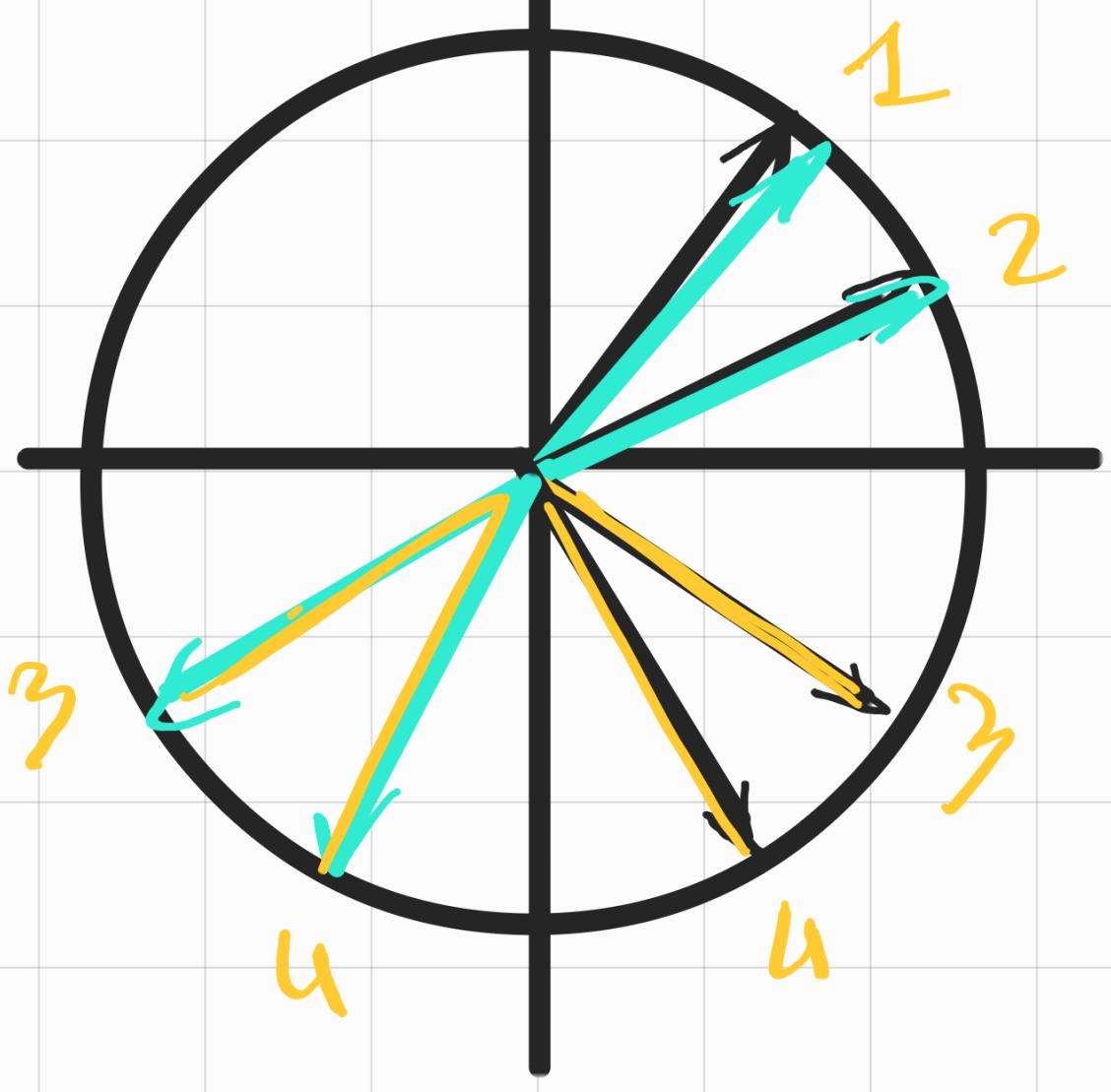
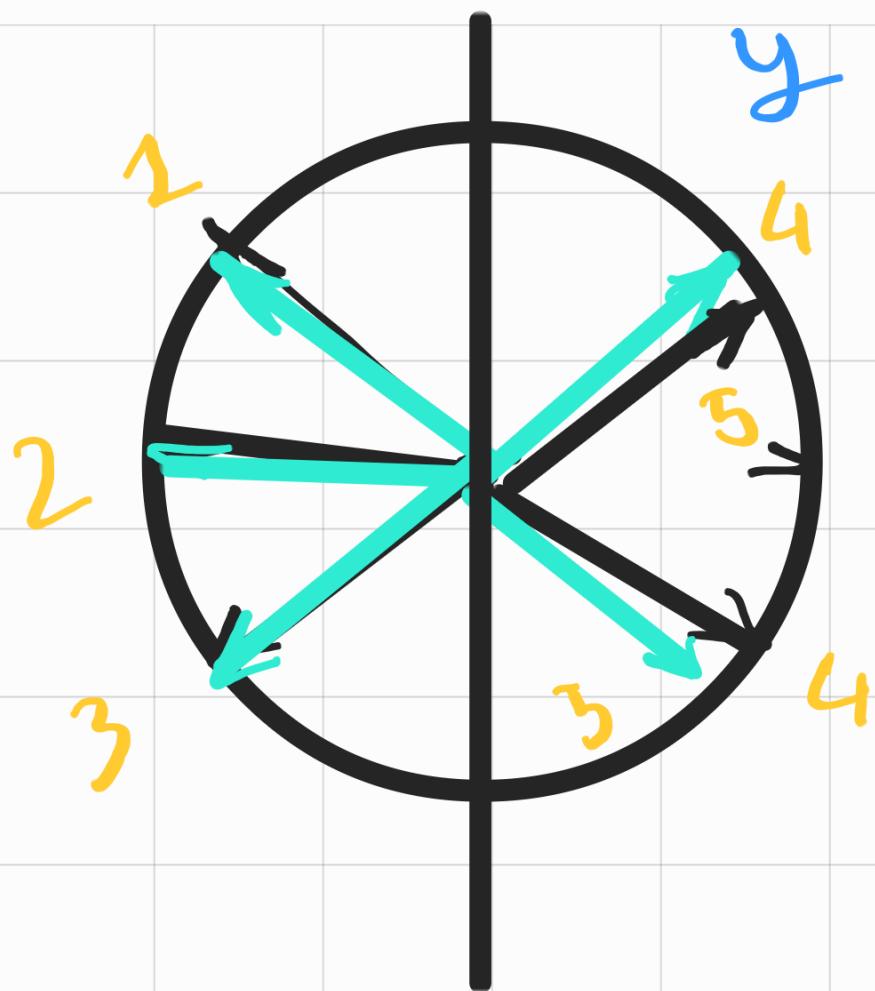


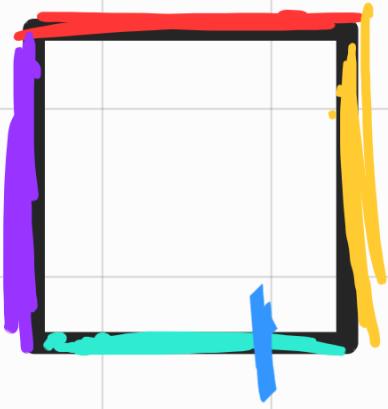
Nord
Ouest
Est
Sud



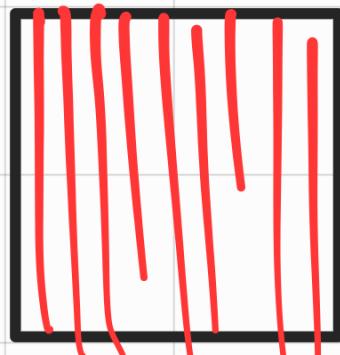


1

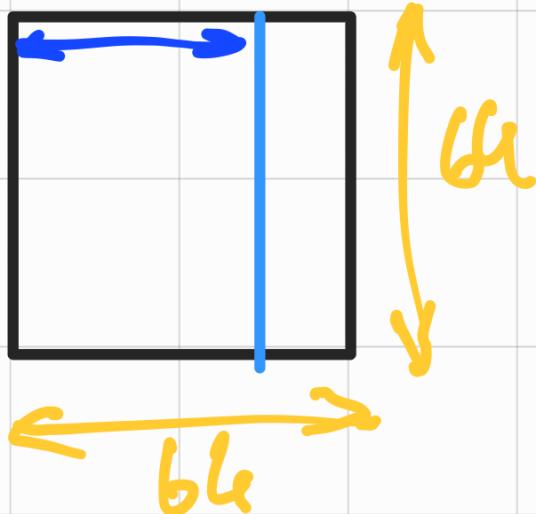


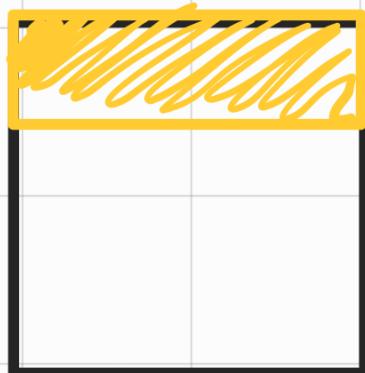


offset x
 $y = 0$



si je sais que
offset - se est la colonne

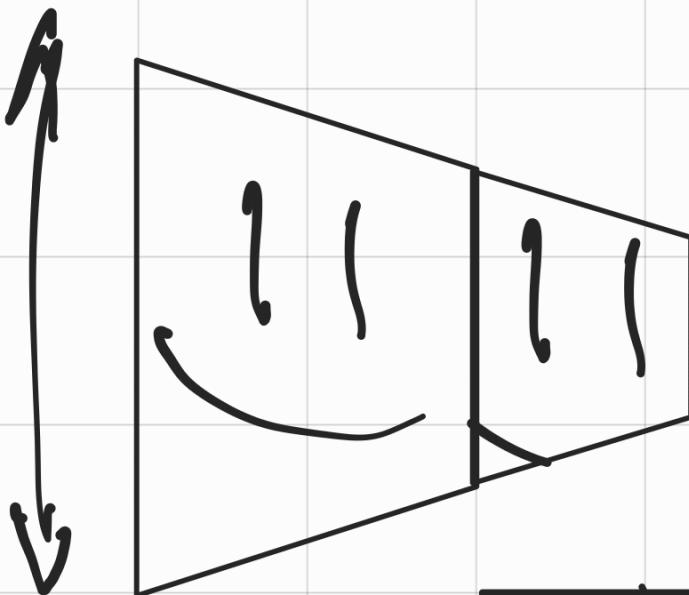




comment adapter la taille de l'image à la projected height ?

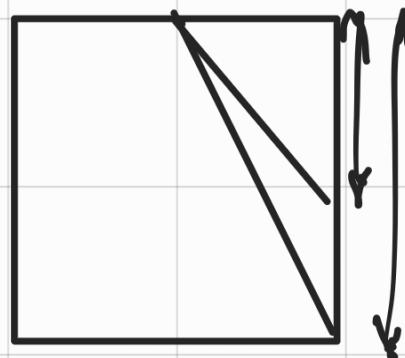
$$\text{img-height} \times ? = \text{proj height}$$

$$=$$



$$l + \frac{\text{img-height}}{\text{proj-height}}$$

$$\text{img-height} \leftarrow \alpha x$$



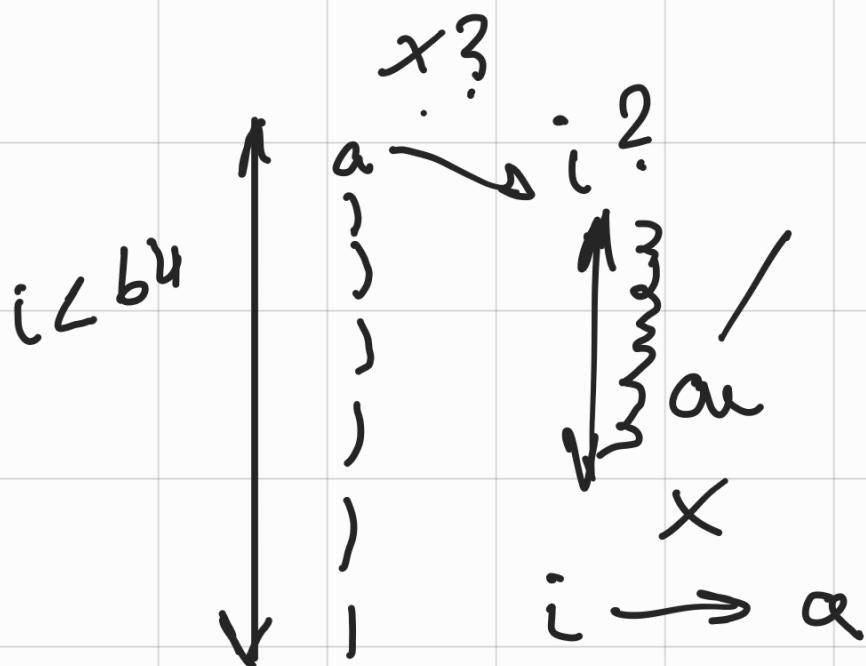
proj pixel

$$\alpha = \frac{\text{img-height}}{\text{distance slice}}$$

X distance to
proj plane

a % b4

$i += \frac{64}{\text{proj-height}} \rightarrow \text{TiLE}$



$64 = \text{proj-height}$

$$i = a$$

$$a = \frac{i}{\text{wall_dist}} \times \left(\frac{\text{screenwidth}}{2 \tan(\alpha)} \right)$$

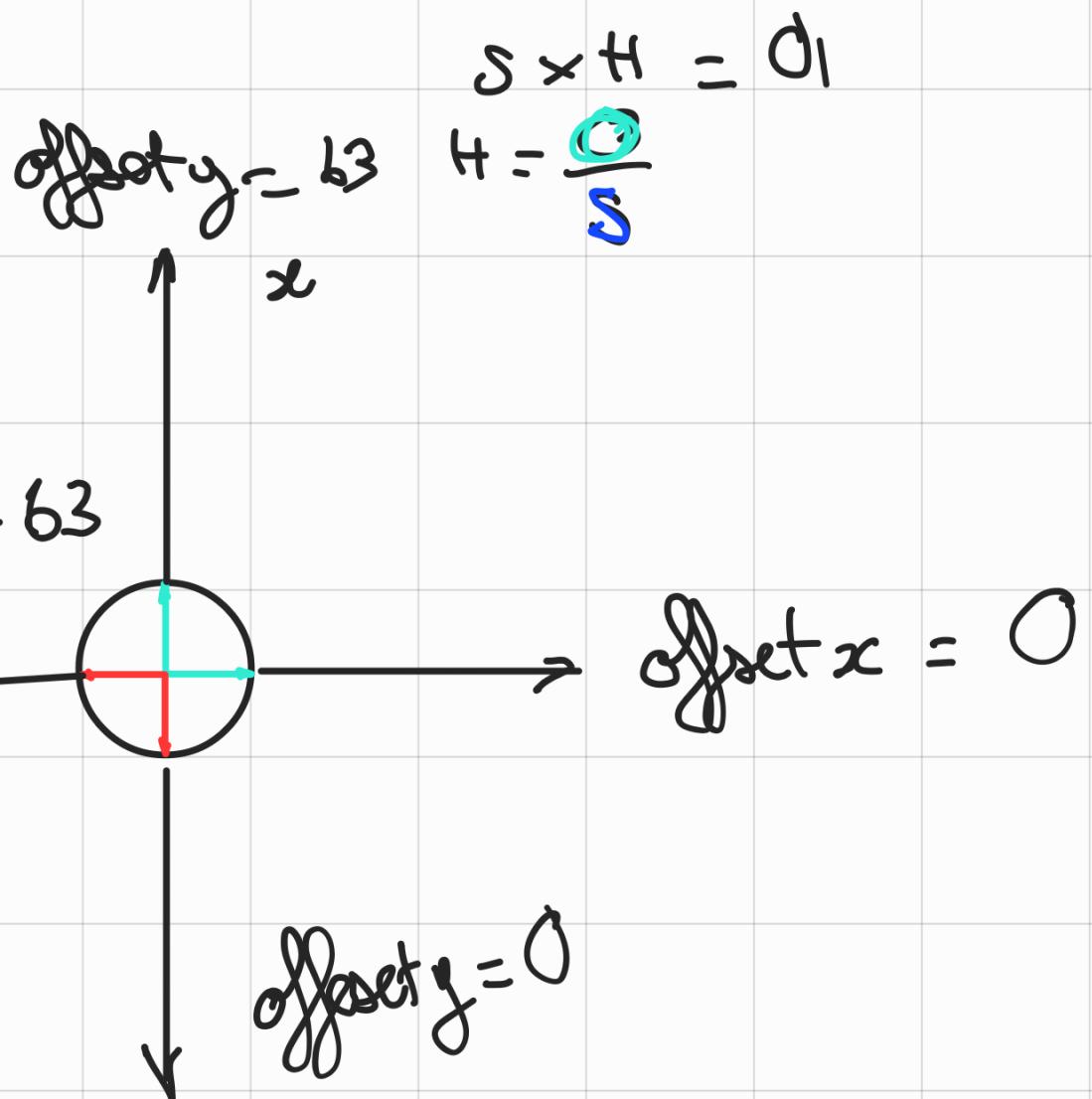
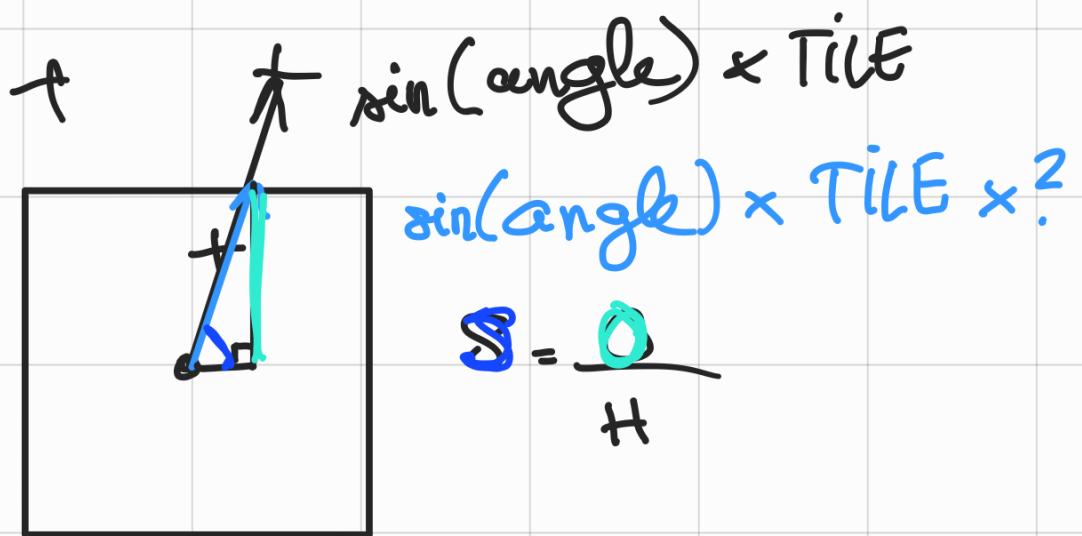
$$\left(\frac{a}{\frac{\text{width}}{2 \tan(\alpha)}} \right) \times \text{wall_dist} = i$$

$$\alpha \times a = i$$

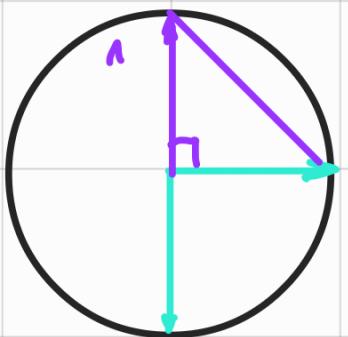
$$= \frac{\text{proj-height}}{2}$$

Le problème n'était pas mon ratio
mais ma limite d'affichage

Idee Parsing: struct line size + valid?



80%

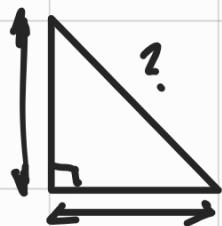


$$\begin{array}{c} -y -x \\ \swarrow \\ \cos > 0 \\ \sin < 0 \end{array}$$

$$\begin{array}{c} \uparrow +x +y \\ \uparrow \\ O \xrightarrow{+y} +x \\ \downarrow -x -y \end{array}$$

$$\tan = \frac{O}{A}$$

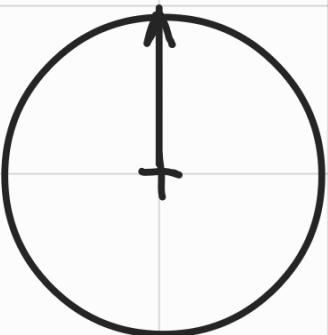
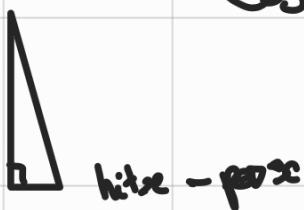
hity A



$$\sin = \frac{O}{H}$$

	W	
A	S	D

$$\cos =$$

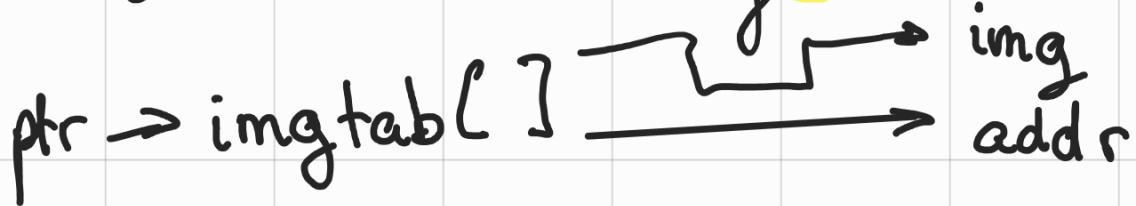


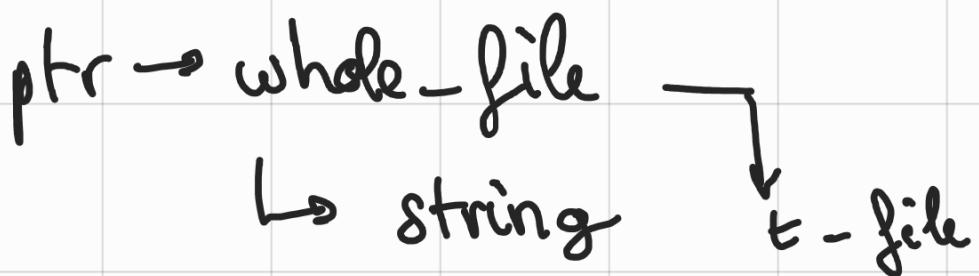
hif. y

$$= \rho \cos y +$$

$$\cos = \frac{A}{H}$$

des éléments à free :

$\text{ptr} \rightarrow \text{imgtab[]}$  img
addr

$\text{ptr} \rightarrow \text{whole_file}$ 
↳ string ↳ file

$\text{ptr} \rightarrow \text{win_ptr}$ $\text{ptr} \rightarrow \text{map_file []}$

$\text{ptr} \rightarrow \text{mplex_ptr}$ map [] []

void is_func (int f, void (*f)(), void *param)
- 1 - isn't functionnal

