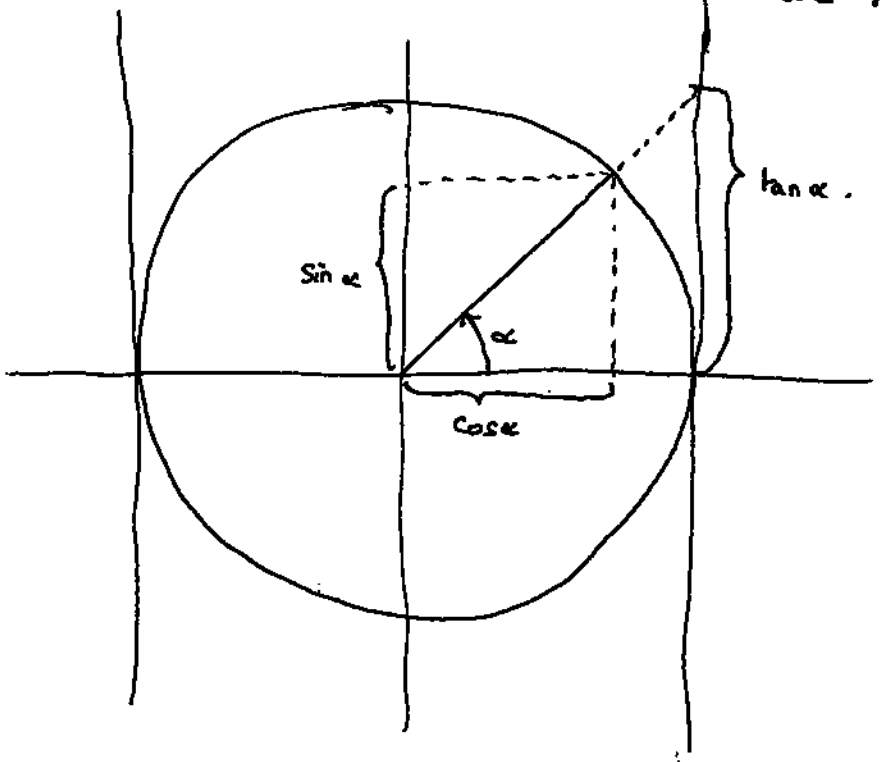
Table of values you should know concerning trigonometric functions:

angle	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	$+\infty$

How to understand them, and to retrieve them?



You should mainly remember the angles:

$\alpha = 0, \frac{\pi}{6}, \frac{\pi}{4}, \frac{\pi}{3}, \frac{\pi}{2}$ (ordered)

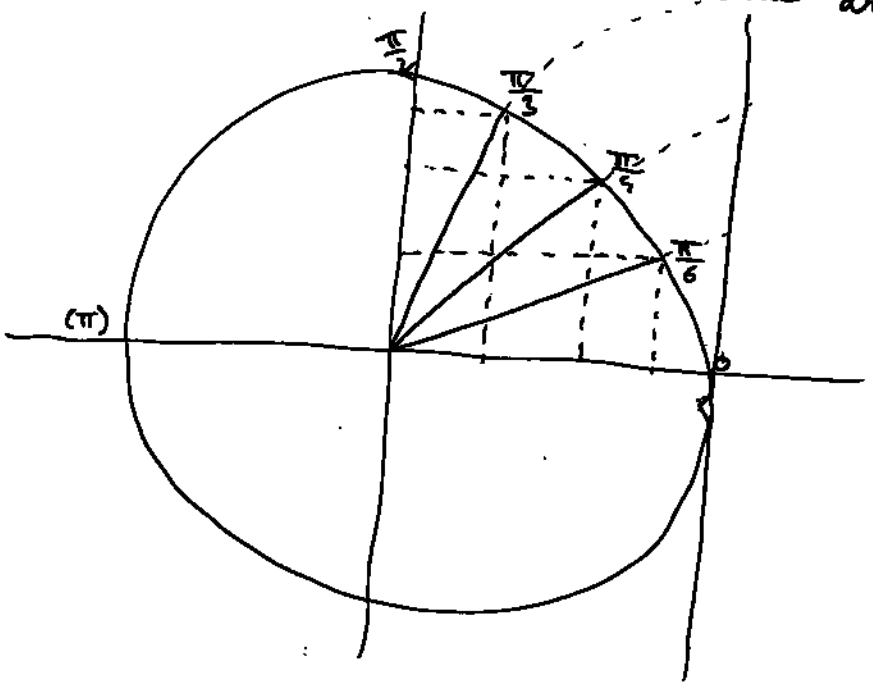
(because $\frac{1}{6} < \frac{1}{4} < \frac{1}{3} < \frac{1}{2}$).

Then the possible values for sin and cos:

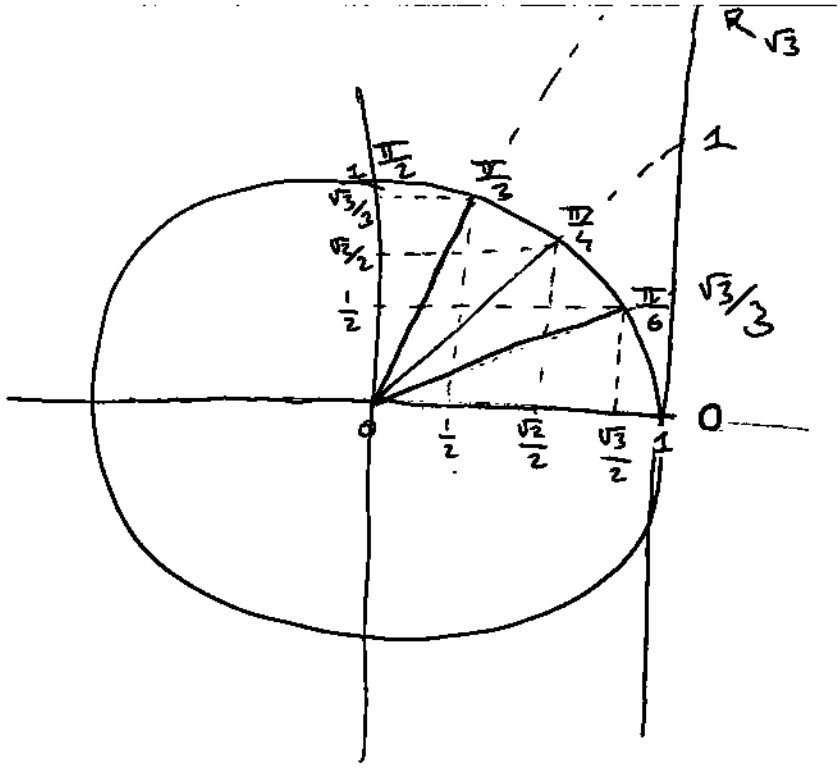
$0, \frac{1}{2}, \frac{\sqrt{2}}{2}, 1, \frac{\sqrt{3}}{2}$. (ordered).

and for tan: $0, \frac{\sqrt{3}}{3}, 1, \sqrt{3}$. (because $1 < \sqrt{2} < \sqrt{3}$).

On the circle, you write the angles:



You project them on both axis, and you write $0, \frac{1}{2}, \frac{\sqrt{2}}{2}, \frac{\sqrt{3}}{2}, 1$ in order:



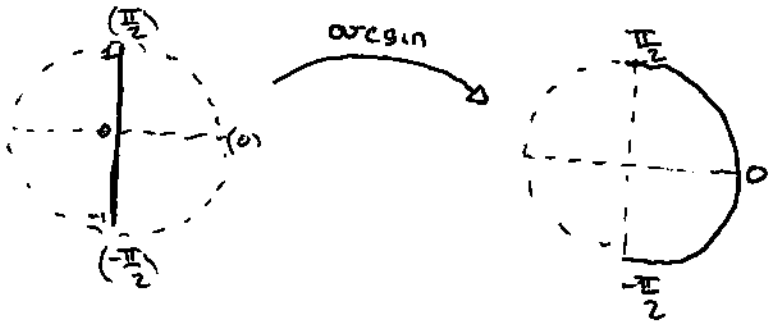
Do not be shy, and if you have to retrieve the value of a cosinus or a sines, sketch this circle to help you.

Alternatively, $\tan\alpha = \frac{\sin\alpha}{\cos\alpha}$, so you can find it back knowing sin and cos.

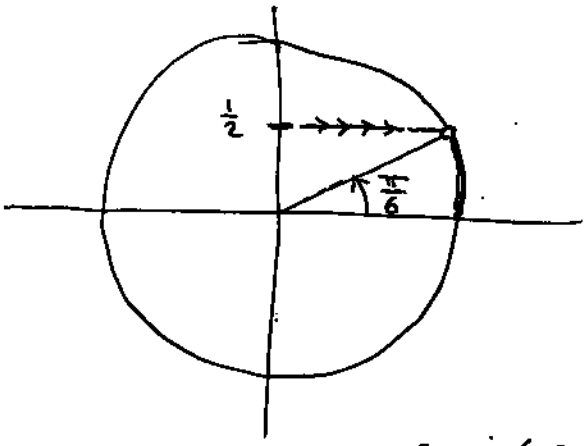
What about arcsin and arccos ?

sin : "angle" ⟶ "sin, read on vertical axis"

arcsin : "vertical axis" $[-1,1]$ ⟶ "angle = length of arc".



So, $\arcsin\left(\frac{1}{2}\right)$ is read as follows:



and in general;

$\arcsin(-1) = -\frac{\pi}{2}$

$\arcsin\left(-\frac{1}{2}\right) = -\pi/6$

$\arcsin(0) = 0$

$\arcsin\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$

$\arcsin(1) = \pi/2$

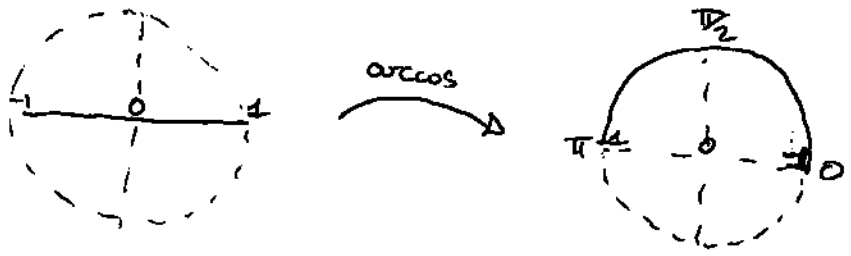
etc.

Similarly,

cos: "angle" ⟶ "horizontal axis"

arccos: "horizontal axis" ⟶ "angle"

$[-1, 1]$



and in general:

$\arccos(-1) = \pi$

$\arccos\left(\frac{-1}{2}\right) = \pi - \frac{\pi}{3} = \frac{2\pi}{3}$.

$\arccos(0) = \frac{\pi}{2}$

$\arccos\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{6}$

$\arccos(1) = 0$

etc ...