3.1 Inverse Trig Functions

Essential Question:

What are the restricted range values of each inverse trig function?

~~Recall:~~ Finding an inverse...

switch x & y!

ex. $y = x^3 \Rightarrow \sqrt[3]{x} = \sqrt[3]{y^3}$

$y = \sqrt[3]{x}$

3.1 Inverse Trig Functions

Essential Question: What are the restricted range values of each inverse trig function?

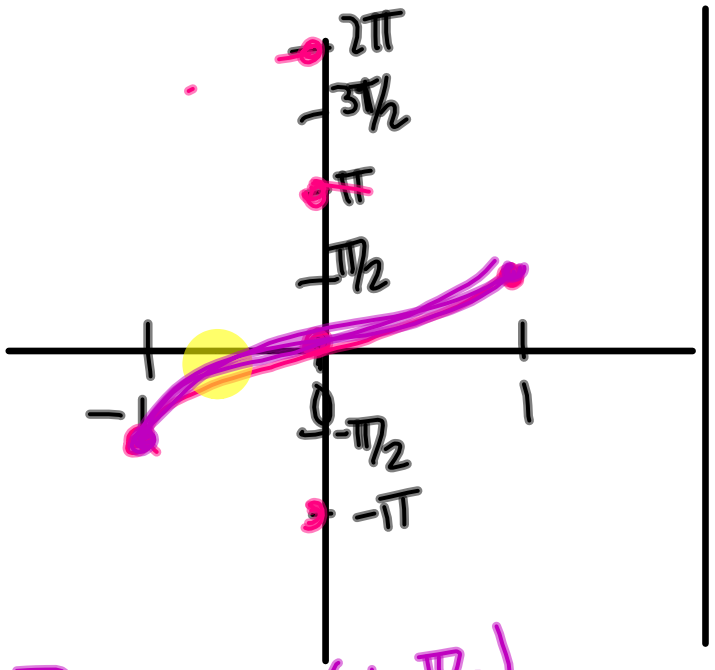
$y = \sin x$ → $x = \sin y$

$\boxed{y = \sin^{-1} x}$

x	y
0	0
$\pi/2$	1
π	0
$3\pi/2$	-1
2π	0
$-\pi/2$	-1
$-\pi$	0

switch x & y

x	y
0	0
1	$\pi/2$
0	π
-1	$3\pi/2$
0	2π
-1	$-\pi/2$
0	$-\pi$



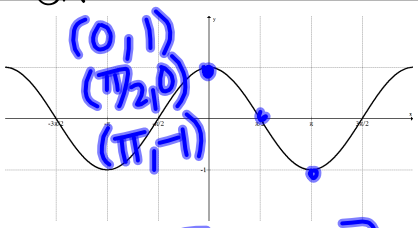
Restricted Range $[-\pi/2, \pi/2]$

CP: $(1, \pi/2)$
$(0, 0)$
$(-1, -\pi/2)$

3.1 Inverse Trig Functions

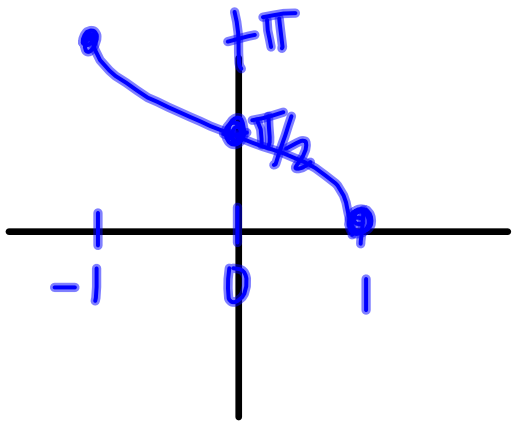
Essential Question: What are the restricted range values of each inverse trig function?

$y=\cos^{-1}x$

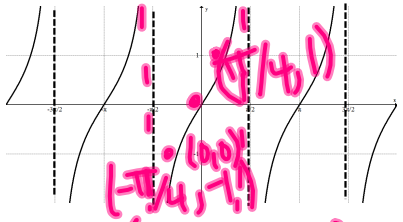


Restricted Range: $[0,\pi]$

CP: $(1,0)$, $(0,\pi/2)$ $(-1,\pi)$



$y=\tan^{-1}x$



Restricted Range: $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

CP: $(0,0)$ $(1,\pi/4)$ $(-1,-\pi/4)$

HA @ $x=-\pi/2$ & $x=\pi/2$