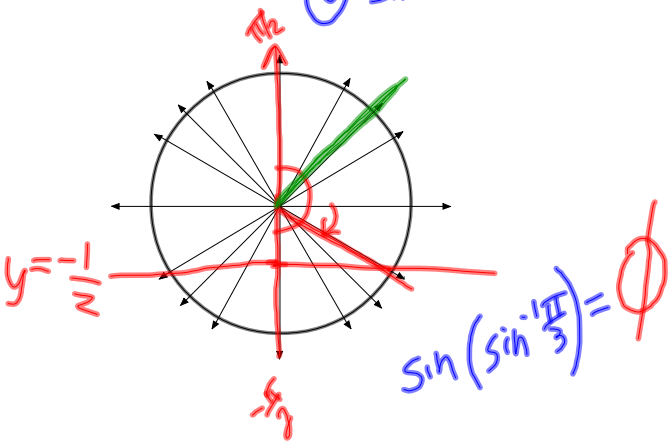
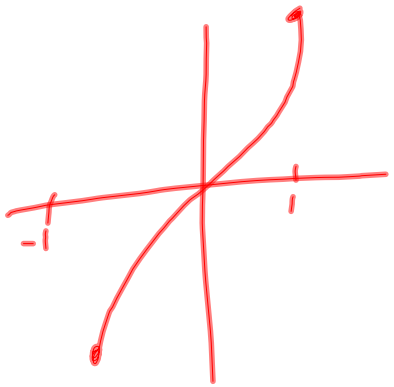
Warm-up

$[-\frac{\pi}{2}, \frac{\pi}{2}]$

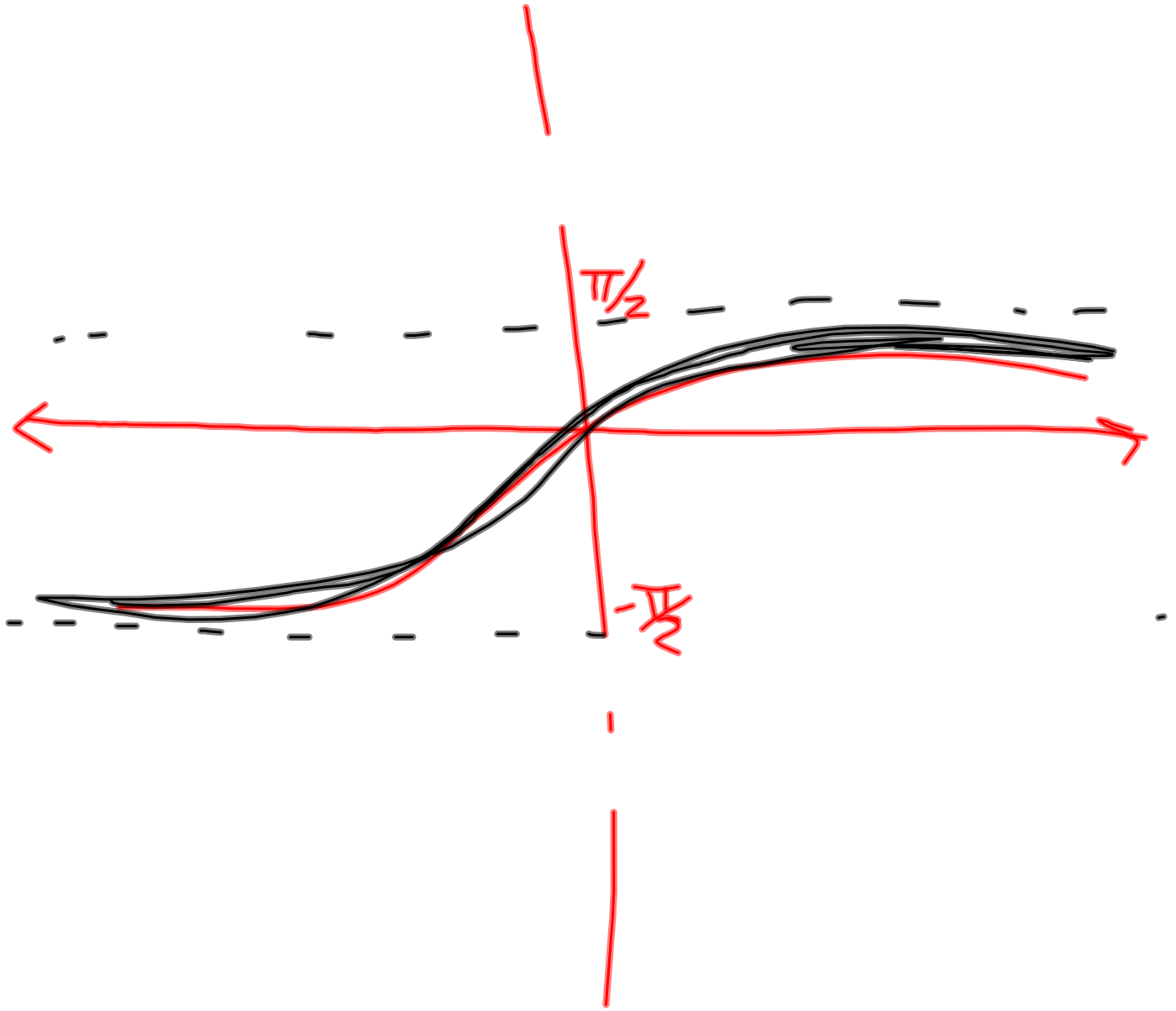
1. $\sin\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$
2. $\cos\left(\frac{17\pi}{3}\right) = \frac{1}{2}$
3. $\tan 91\pi = 0$
4. $\sin^{-1}\left(-\frac{1}{2}\right) = -\frac{\pi}{6}$
5. $\arcsin\left(\frac{\sqrt{2}}{2}\right) = \frac{\pi}{4}$
6. $\sin^{-1}\left(\sin\frac{\pi}{3}\right) = \frac{\pi}{3}$

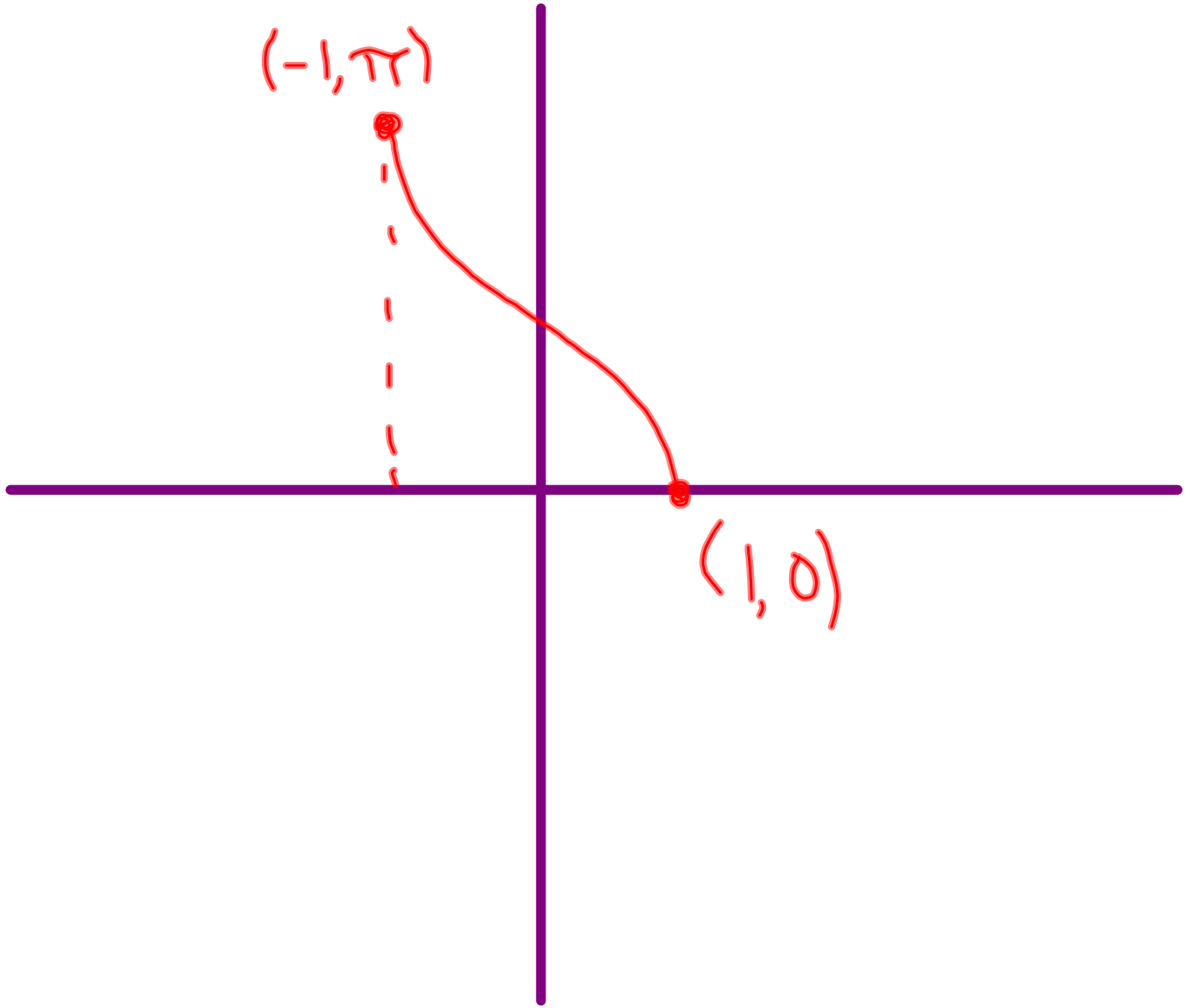


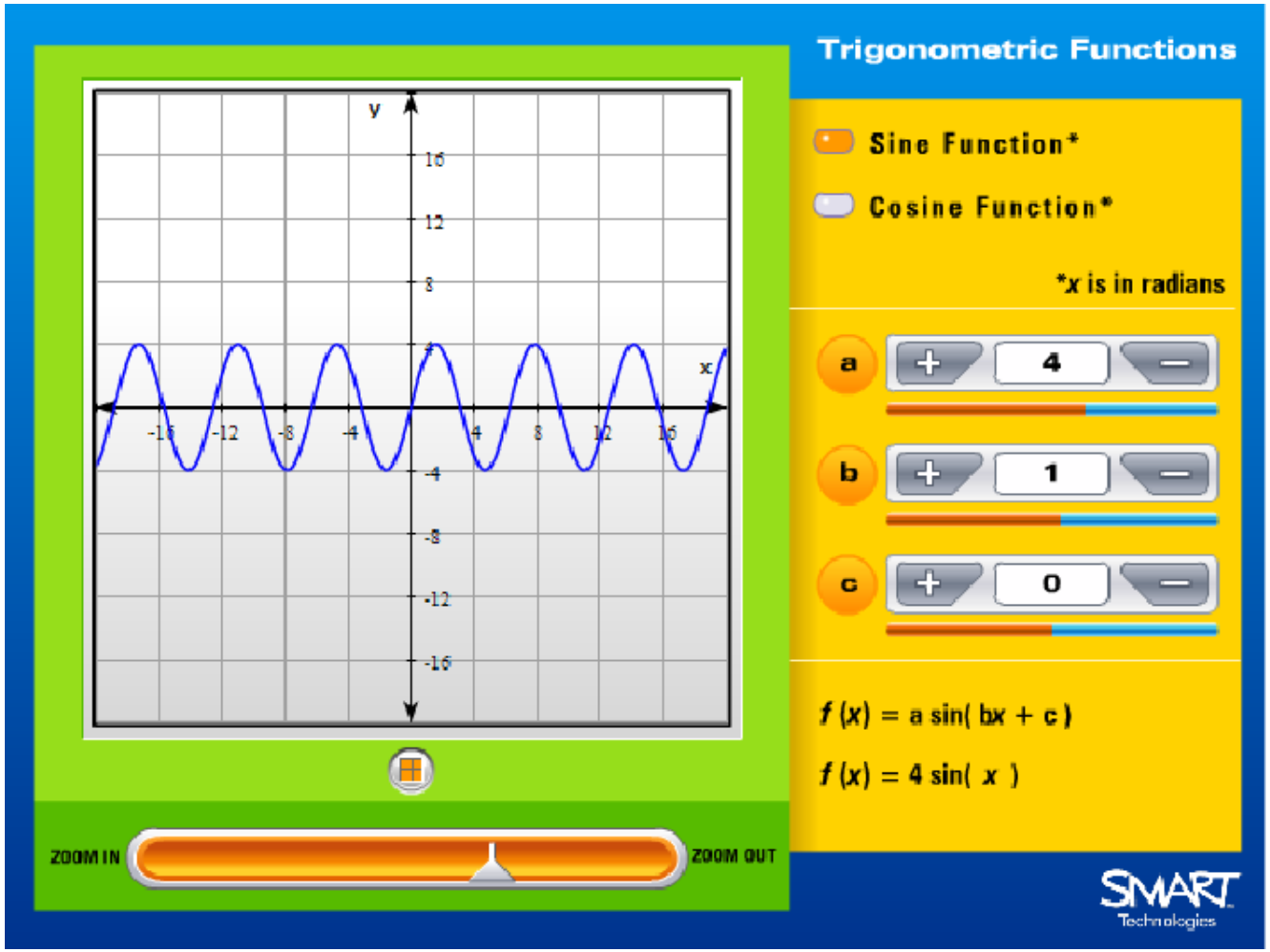
$\sin\left(\sin^{-1}\frac{\pi}{3}\right) = \frac{\pi}{3}$

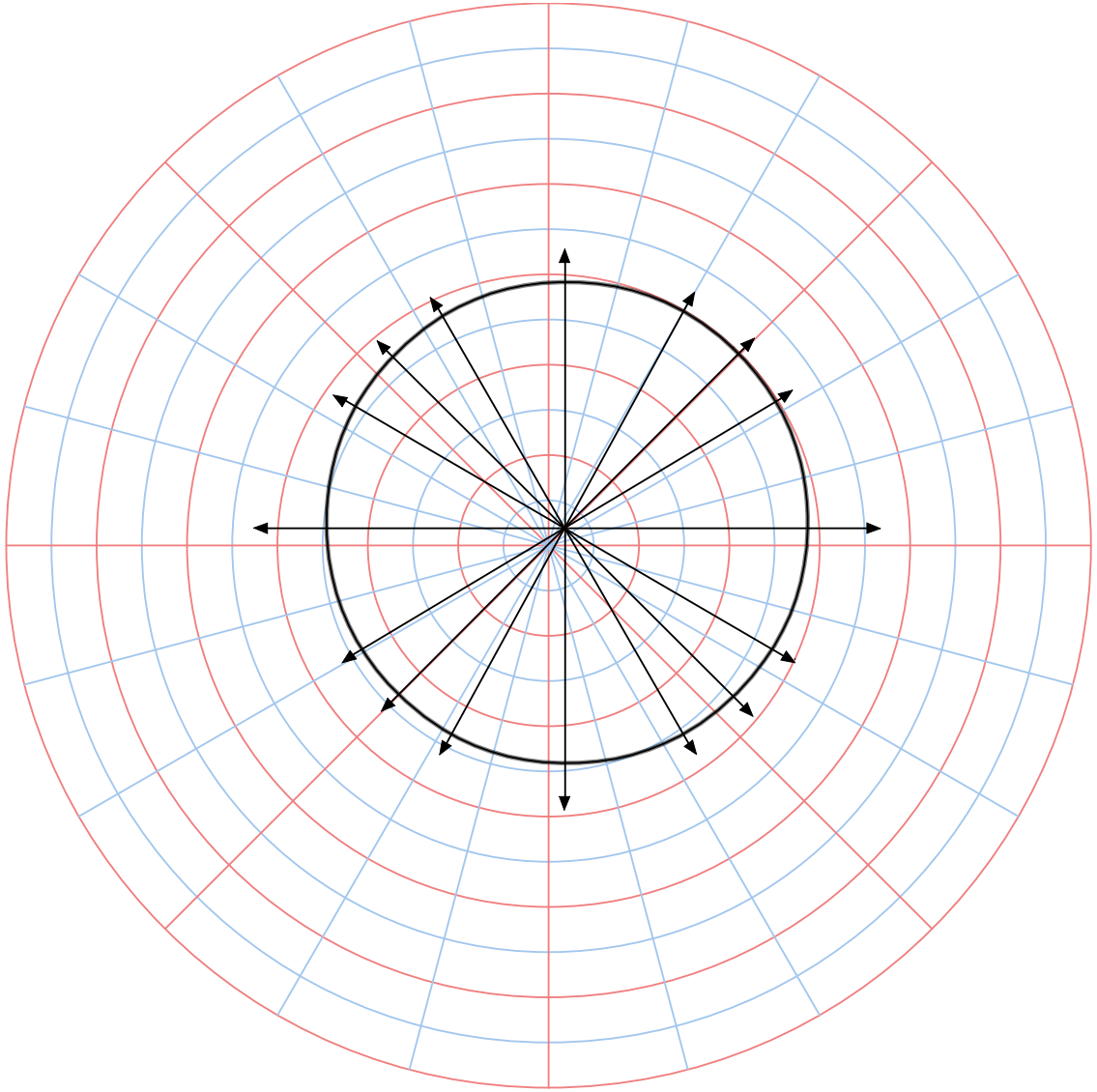


Functin	Domain	Range
$\sin$	$(-\infty, \infty)$	$[-1, 1]$
$\sin^{-1}$	$[-1, 1]$	$[-\frac{\pi}{2}, \frac{\pi}{2}]$
$\cos$	$(-\infty, \infty)$	$[-1, 1]$
$\cos^{-1}$	$[-1, 1]$	$[0, \pi]$
$\tan$	All reals except $\frac{\pi}{2}k$ where k is an odd integer	$(-\infty, \infty)$
$\tanh^{-1}$	$(-\infty, \infty)$	$(-\frac{\pi}{2}, \frac{\pi}{2})$


π/2
-π/2

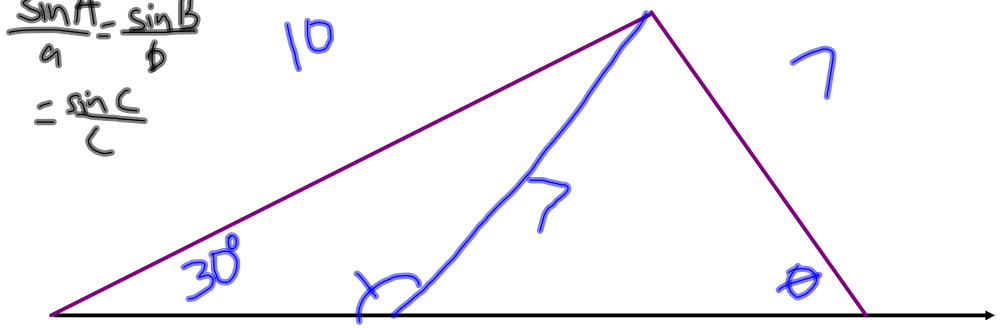

(-1, π)
(1, 0)


Trigonometric Functions
Sine Function*
Cosine Function*
*x is in radians
a
4
b
1
c
0
f (x) = a sin(bx + c)
f (x) = 4 sin(x)
y
x
16
12
8
4
-4
-8
-12
-16
ZOOM IN
ZOOM OUT
SMART
Technologies



$\sin 30^\circ = \frac{5}{10}$

$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$



$\frac{\sin 30^\circ}{7} = \frac{\sin \theta}{10} \rightarrow \frac{10 \sin 30^\circ}{7} = \frac{7 \sin \theta}{7}$

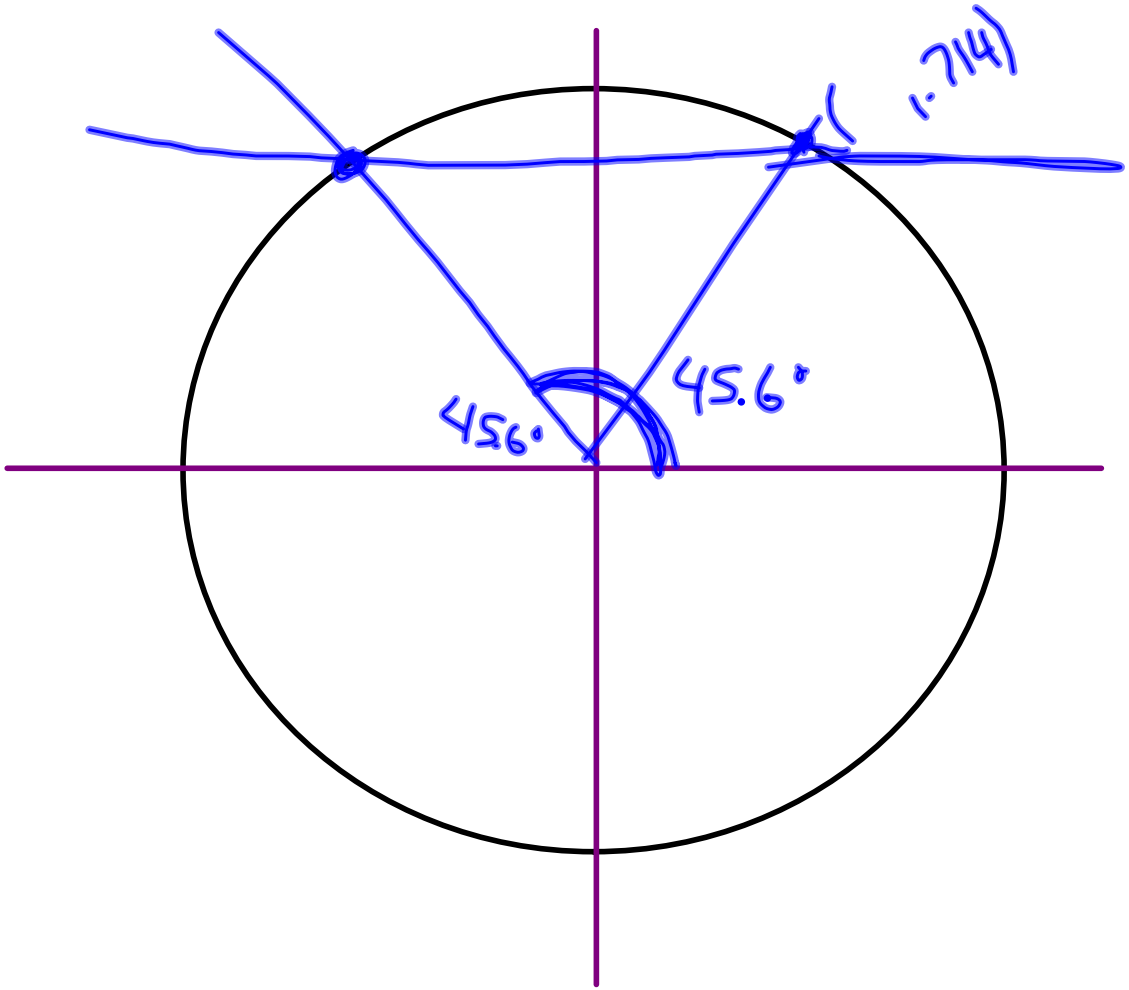
$\theta = 45.6^\circ$

$\frac{10 \sin 30^\circ}{7} = \sin \theta$

$\frac{5}{7} = \sin \theta$

$\sin^{-1}\left(\frac{5}{7}\right) = \sin^{-1}(\sin \theta)$

$\sin^{-1}\left(\frac{5}{7}\right) = \theta$


1.714
45.6°
45.6°