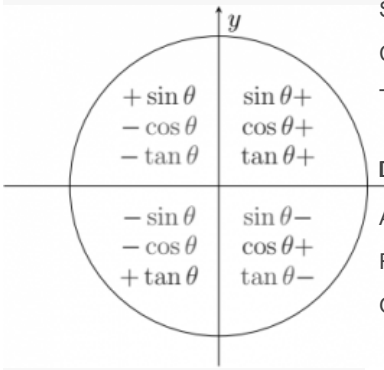
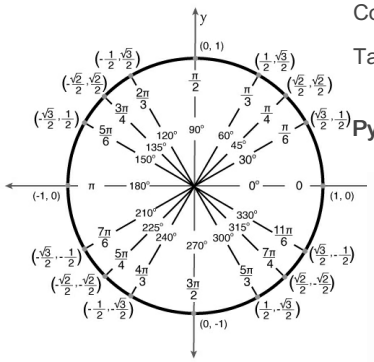
Sign in quadrants



Unit circle

Unit Circle



Unit circle trig functions

Sin θ=y/r	Csc θ=r/y
Cos θ=x/r	Sec θ=r/x
Tan θ=y/x	Cot θ=x/y

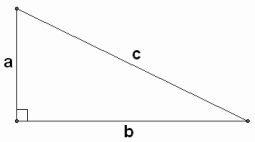
Degrees

Acute	Less than 90
Right	90
Obtuse	More than 90, less than 180
Straight	180

SohCahToa Trig Functions

Sinθ=opp/hyp	Cscθ=hyp/opp
Cosθ=adj/hyp	Secθ=hyp/adj
Tanθ=adj/opp	Cotθ=app/adj

Pythagorean Theory



$a^2 + b^2 = c^2$

Fundamental identities

Reciprocal Identities	sinθ=1/csc	cscθ=1/sin
	cosθ=1/sec	secθ=1/cos
	tanθ=1/cot	cotθ=1/tan
Pythag-orean Identities	$\sin^2\theta + \cos^2\theta=1$	
	$1+\tan^2\theta=\sec^2\theta$	
	$1+\cot^2\theta=\csc^2\theta$	
Quotient Identities	tanθ=sinθ/cosθ	
	cotθ=cosθ/sinθ	

Odd and Even Functions

Odd	Even
sin(-t)=-sin t	cos(-t)=cos t
csc(-t)=-csc t	sec(-t)=sec t
tan(-t)=-tan t	
cot(-t)=-cot t	

Formulas

Arc length	S=rθ
Area of a sector	$A=1/2r^2\theta$
Linear speed	V=s/t=rθ/t=**rw**
Angular speed	w=θ/t
R	$r=\sqrt{x^2 + y^2}$

Unit circle θ

θ		sin θ	cos θ	tan θ	csc θ	sec θ	cot θ
Rad	Deg						
0 / 2π	0	0	1	0	Undef	1	Undef
π/6	30	1/2	$\sqrt{3}/2$	$\sqrt{3}/3$	2	$2\sqrt{3}/3$	$\sqrt{3}$
π/4	45	$\sqrt{2}/2$	$\sqrt{2}/2$	1	$\sqrt{2}$	$\sqrt{2}$	1
π/3	60	$\sqrt{3}/2$	1/2	$\sqrt{3}$	$2\sqrt{3}/3$	2	$\sqrt{3}/3$
π/2	90	1	0	Undef	1	Undef	0
2π/3	120	$\sqrt{3}/2$	− 1/2	$-\sqrt{3}$	$2\sqrt{3}/3$	-2	$-\sqrt{3}/3$
3π/4	135	$\sqrt{2}/2$	$-\sqrt{2}/2$	-1	$\sqrt{2}$	$-\sqrt{2}$	-1
5π/6	150	1/2	$-\sqrt{3}/2$	$-\sqrt{3}/3$	2	$-2\sqrt{3}/3$	$-\sqrt{3}$
π	180	0	-1	0	Undef	-1	Undef
7π/6	210	− 1/2	$-\sqrt{3}/2$	$\sqrt{3}/3$	-2	$-2\sqrt{3}/3$	$\sqrt{3}$
5π/4	225	$-\sqrt{2}/2$	$-\sqrt{2}/2$	1	$-\sqrt{2}$	$-\sqrt{2}$	1
4π/3	240	$-\sqrt{3}/2$	− 1/2	$\sqrt{3}$	$-2\sqrt{3}/3$	-2	$\sqrt{3}/3$
3π/2	270	-1	0	Undef	-1	Undef	0
5π/3	300	$-\sqrt{3}/2$	1/2	$-\sqrt{3}$	$-2\sqrt{3}/3$	2	$-\sqrt{3}/3$
7π/4	315	$-\sqrt{3}/2$	$\sqrt{2}/2$	-1	$-\sqrt{2}$	$\sqrt{2}$	-1
11π/6	330	− 1/2	$\sqrt{3}/2$	$-\sqrt{3}/3$	-2	$2\sqrt{3}/3$	$-\sqrt{3}$

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