5

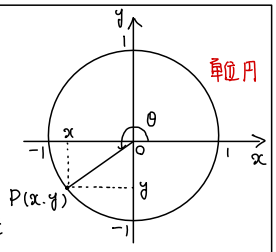
・三角関数の定義

$\sin\theta = y$ （y座標）

$\cos\theta = x$ （x座標）

$\tan\theta = \frac{y}{x}$ （傾き）

$\sin\theta$、$\cos\theta$、$\tan\theta$ は θ の値によって ただ1つに定まるので、これらを **三角関数** という。



(例)

θ	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2}{3}\pi$	$\frac{3}{4}\pi$	$\frac{5}{6}\pi$	π
$\sin\theta$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0
$\cos\theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1
$\tan\theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	×	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0

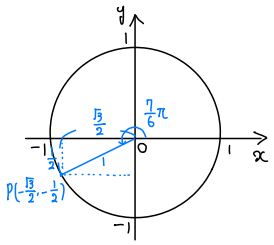
θ	π	$\frac{7}{6}\pi$	$\frac{5}{4}\pi$	$\frac{4}{3}\pi$	$\frac{3}{2}\pi$	$\frac{5}{3}\pi$	$\frac{7}{4}\pi$	$\frac{11}{6}\pi$	2π
$\sin\theta$	0	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0
$\cos\theta$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
$\tan\theta$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	×	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0

← 0と同じ

$\sin\frac{7}{6}\pi = y = -\frac{1}{2}$

$\cos\frac{7}{6}\pi = x = -\frac{\sqrt{3}}{2}$

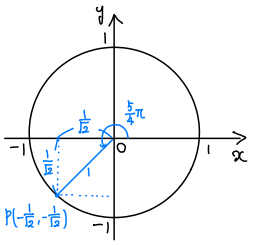
$\tan\frac{7}{6}\pi = \frac{y}{x} = \frac{1}{\sqrt{3}}$



$\sin\frac{5}{4}\pi = y = -\frac{1}{\sqrt{2}}$

$\cos\frac{5}{4}\pi = x = -\frac{1}{\sqrt{2}}$

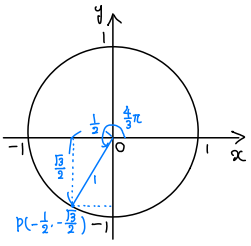
$\tan\frac{5}{4}\pi = \frac{y}{x} = 1$



$\sin\frac{4}{3}\pi = y = -\frac{\sqrt{3}}{2}$

$\cos\frac{4}{3}\pi = x = -\frac{1}{2}$

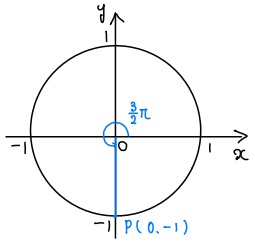
$\tan\frac{4}{3}\pi = \frac{y}{x} = \sqrt{3}$



$\sin\frac{3}{2}\pi = y = -1$

$\cos\frac{3}{2}\pi = x = 0$

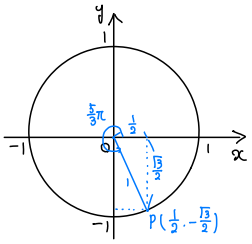
$\tan\frac{3}{2}\pi = \frac{y}{x}$ ×



$\sin\frac{5}{3}\pi = y = -\frac{\sqrt{3}}{2}$

$\cos\frac{5}{3}\pi = x = \frac{1}{2}$

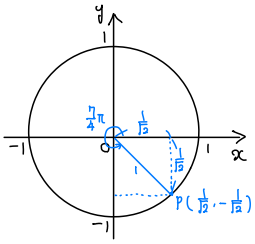
$\tan\frac{5}{3}\pi = \frac{y}{x} = -\sqrt{3}$



$\sin\frac{7}{4}\pi = y = -\frac{1}{\sqrt{2}}$

$\cos\frac{7}{4}\pi = x = \frac{1}{\sqrt{2}}$

$\tan\frac{7}{4}\pi = \frac{y}{x} = -1$



$\sin\frac{11}{6}\pi = y = -\frac{1}{2}$

$\cos\frac{11}{6}\pi = x = \frac{\sqrt{3}}{2}$

$\tan\frac{11}{6}\pi = \frac{y}{x} = -\frac{1}{\sqrt{3}}$