

The Unit Circle – Honors Math 3

Key

Complete the chart:

	$\sin \theta$ y	$\cos \theta$ x	$\tan \theta$ y/x	$\csc \theta$ 1/y	$\sec \theta$ 1/x	$\cot \theta$ x/y
0 (1, 0)	0	1	0	undef	1	undef
$\pi/6$ ($\sqrt{3}/2, 1/2$)	$1/2$	$\sqrt{3}/2$	$\sqrt{3}/3$	2	$2\sqrt{3}/3$	$\sqrt{3}$
$\pi/4$ ($\sqrt{2}/2, \sqrt{2}/2$)	$\sqrt{2}/2$	$\sqrt{2}/2$	1	$\sqrt{2}$	$\sqrt{2}$	1
$\pi/3$ ($1/2, \sqrt{3}/2$)	$\sqrt{3}/2$	$1/2$	$\sqrt{3}$	$2\sqrt{3}/3$	2	$\sqrt{3}/3$
$\pi/2$ (0, 1)	1	0	undef.	1	undef.	0
$2\pi/3$ ($-1/2, \sqrt{3}/2$)	$\sqrt{3}/2$	$-1/2$	$-\sqrt{3}$	$2\sqrt{3}/3$	-2	$-\sqrt{3}/3$
$3\pi/4$ ($-\sqrt{2}/2, \sqrt{2}/2$)	$\sqrt{2}/2$	$-\sqrt{2}/2$	-1	$\sqrt{2}$	$-\sqrt{2}$	-1
$5\pi/6$ ($-\sqrt{3}/2, 1/2$)	$1/2$	$-\sqrt{3}/2$	$-\sqrt{3}/3$	2	$-\frac{2\sqrt{3}}{3}$	$-\sqrt{3}$
π (-1, 0)	0	-1	0	undef	-1	undef
$7\pi/6$ ($-\sqrt{3}/2, -1/2$)	$-1/2$	$-\sqrt{3}/2$	$\sqrt{3}/3$	-2	$-\frac{2\sqrt{3}}{3}$	$\sqrt{3}$
$5\pi/4$ ($-\sqrt{2}/2, -\sqrt{2}/2$)	$-\sqrt{2}/2$	$-\sqrt{2}/2$	1	$-\sqrt{2}$	$-\sqrt{2}$	1
$4\pi/3$ ($-1/2, -\sqrt{3}/2$)	$-\sqrt{3}/2$	$-1/2$	$\sqrt{3}$	$-\frac{2\sqrt{3}}{3}$	-2	$\sqrt{3}/3$
$3\pi/2$ (0, -1)	-1	0	undef	-1	undef	0
$5\pi/3$ ($1/2, -\sqrt{3}/2$)	$-\sqrt{3}/2$	$1/2$	$-\sqrt{3}$	$-\frac{2\sqrt{3}}{3}$	2	$-\frac{\sqrt{3}}{3}$
$7\pi/4$ ($\sqrt{2}/2, -\sqrt{2}/2$)	$-\sqrt{2}/2$	$\sqrt{2}/2$	-1	$-\sqrt{2}$	$\sqrt{2}$	-1
$11\pi/6$ ($\sqrt{3}/2, -1/2$)	$-1/2$	$\sqrt{3}/2$	$-\sqrt{3}/3$	-2	$\frac{2\sqrt{3}}{3}$	$-\sqrt{3}$
2π (1, 0)	0	1	0	undef.	1	undef.

Evaluate the trigonometric function:

1. $\sin 3\pi + 2\pi = \frac{\sin \pi}{\pi}$
0
2. $\cos 3\pi - 2\pi = \cos \pi$
-1
3. $\cos \frac{8\pi}{3} = \cos \frac{2\pi}{3}$
-1/2
4. $\sin \frac{9\pi}{4} = \sin \pi/4 = \sqrt{2}/2$
 $\sqrt{2}/2$
5. $\cos \frac{19\pi}{6} = \cos \frac{7\pi}{6}$
- $\sqrt{3}/2$
6. $\sin(-\frac{13\pi}{6}) \sin \frac{11\pi}{6}$
-1/2
7. $\cos(-\frac{8\pi}{3}) \cos \frac{4\pi}{3}$
-1/2
8. $\sin(-\frac{9\pi}{4}) \sin(\frac{7\pi}{4})$
- $\sqrt{2}/2$