

### 5.3C - Unit Circle Ratios for Common Angles

Notice pattern for numerator in radian measures.  
 one over denominator. (i.e.  $1\pi/b$ )  
 one less than denominator. (i.e.  $(b-1)\pi/b$ )  
 one more than denominator. (i.e.  $(b+1)\pi/b$ )  
 one less than double denominator. (i.e.  $(2b-1)\pi/b$ )

$\theta^\circ$	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$	$120^\circ$	$135^\circ$	$150^\circ$	$180^\circ$	$210^\circ$	$225^\circ$	$240^\circ$	$270^\circ$	$300^\circ$	$315^\circ$	$330^\circ$	$360^\circ$
$\theta^\circ$ (in rads)	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	0	$\frac{7\pi}{6}$	$\frac{5\pi}{4}$	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$	$\frac{7\pi}{4}$	$\frac{11\pi}{6}$	$2\pi$
Sin $\theta^\circ$	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	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0
Cos $\theta^\circ$	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	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
Tan $\theta^\circ$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	-	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	-	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0
Pt (x,y) (exact)	(1,0)	$(\frac{\sqrt{3}}{2}, \frac{1}{2})$	$(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$	$(\frac{1}{2}, \frac{\sqrt{3}}{2})$	(0,1)	$(-\frac{1}{2}, \frac{\sqrt{3}}{2})$	$(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$	$(-\frac{\sqrt{3}}{2}, \frac{1}{2})$	(-1,0)	$(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$	$(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}})$	$(-\frac{1}{2}, -\frac{\sqrt{3}}{2})$	(0,-1)	$(\frac{1}{2}, -\frac{\sqrt{3}}{2})$	$(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}})$	$(\frac{\sqrt{3}}{2}, -\frac{1}{2})$	(1,0)
Pt (x,y) (decimal)	(1,0)	(0.87,0.5)	(0.7,0.7)	(0.5,0.87)	(0,1)	(-0.5,0.87)	(-0.7,0.7)	(-0.87,0.5)	(-1,0)	(-0.87,-0.5)	(-0.7,-0.7)	(-0.5,-0.87)	(0,-1)	(0.5,-0.87)	(0.7,-0.7)	(0.87,-0.5)	(1,0)

$\theta^\circ$	$0^\circ$	$30^\circ$	$45^\circ$	$60^\circ$	$90^\circ$	$120^\circ$	$135^\circ$	$150^\circ$	$180^\circ$	$210^\circ$	$225^\circ$	$240^\circ$	$270^\circ$	$300^\circ$	$315^\circ$	$330^\circ$	$360^\circ$
$\theta^\circ$ (in rads)	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	0	$\frac{7\pi}{6}$	$\frac{5\pi}{4}$	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$	$\frac{7\pi}{4}$	$\frac{11\pi}{6}$	$2\pi$
Sin $\theta^\circ$	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	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{\sqrt{3}}{2}$	-1	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0
Cos $\theta^\circ$	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	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1
Tan $\theta^\circ$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	-	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	-	$-\sqrt{3}$	-1	$-\frac{1}{\sqrt{3}}$	0
Pt (x,y) (exact)	(1,0)	$(\frac{\sqrt{3}}{2}, \frac{1}{2})$	$(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$	$(\frac{1}{2}, \frac{\sqrt{3}}{2})$	(0,1)	$(-\frac{1}{2}, \frac{\sqrt{3}}{2})$	$(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$	$(-\frac{\sqrt{3}}{2}, \frac{1}{2})$	(-1,0)	$(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$	$(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}})$	$(-\frac{1}{2}, -\frac{\sqrt{3}}{2})$	(0,-1)	$(\frac{1}{2}, -\frac{\sqrt{3}}{2})$	$(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}})$	$(\frac{\sqrt{3}}{2}, -\frac{1}{2})$	(1,0)
Pt (x,y) (decimal)	(1,0)	(0.87,0.5)	(0.7,0.7)	(0.5,0.87)	(0,1)	(-0.5,0.87)	(-0.7,0.7)	(-0.87,0.5)	(-1,0)	(-0.87,-0.5)	(-0.7,-0.7)	(-0.5,-0.87)	(0,-1)	(0.5,-0.87)	(0.7,-0.7)	(0.87,-0.5)	(1,0)