α	$\frac{\pi}{6}=30^\circ$	$\frac{\pi}{4}=45^\circ$	$\frac{\pi}{3}=60^\circ$
$\sin\alpha$	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
$\cos\alpha$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$
$\tan\alpha$	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$
$\cot\alpha$	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$

The most commonly used quadrantal angles

α	$\sin\alpha$	$\cos\alpha$	$\tan\alpha$	$\cot\alpha$
0	0	1	0	$\times$
$\frac{\pi}{2}$	1	0	$\times$	0
π	0	-1	0	$\times$
$\frac{3}{2}\pi$	-1	0	$\times$	0
2π	0	1	0	$\times$

Trigonometric identities

$$\tan\alpha=\frac{\sin\alpha}{\cos\alpha}$$
$$\cot\alpha=\frac{\cos\alpha}{\sin\alpha}$$
$$\tan\alpha\cdot\cot\alpha=1$$
$$\sin^2\alpha+\cos^2\alpha=1$$
$$\sin(2\alpha)=2\sin\alpha\cos\alpha$$
$$\cos(2\alpha)=\cos^2\alpha-\sin^2\alpha$$
$$\sin(\alpha+\beta)=\sin\alpha\cos\beta+\cos\alpha\sin\beta$$
$$\cos(\alpha+\beta)=\cos\alpha\cos\beta-\sin\alpha\sin\beta$$

Properties of exponents

If $a,b>0$ and $x,y\in R$,

1. $a^{x+y}=a^xa^y$
2. $a^{x-y}=\frac{a^x}{a^y}$
3. $(a^x)^y=a^{xy}$
4. $(ab)^x=a^xb^x$
5. $a^{-x}=\frac{1}{a^x}$

Root rules

If $a\geq 0$, $b\geq 0$, m, $n\in N\setminus\{0\}$ then

1. $\sqrt[n]{a\cdot b}=\sqrt[n]{a}\cdot\sqrt[n]{b}$,
2. $\sqrt[n]{\frac{a}{b}}=\frac{\sqrt[n]{a}}{\sqrt[n]{b}}$, $(b\neq 0)$,
3. $\sqrt[n]{\sqrt[m]{a}}=\sqrt[n\cdot m]{a}=\sqrt[m]{\sqrt[n]{a}}$,
4. $a^{\frac{m}{n}}=\sqrt[n]{a^m}$
5. $a^{-\frac{m}{n}}=\frac{1}{\sqrt[n]{a^m}}$

Properties of logs

If $a,b>0$, $a,b\neq 1$ and $x,y>0$

1. $\log_a 1=0$
2. $\log_a a=1$
3. $\log_a a^x=x$
4. $a^{\log_a x}=x$
5. $log_a x=\frac{\log_b x}{\log_b a}$
6. $\log_b a=\frac{1}{\log_a b}$
7. $\log_a(xy)=\log_a x+\log_a y$
8. $\log_a\left(\frac{x}{y}\right)=\log_a x-\log_a y$
9. $\log_a x^n=n\log_a x$