$\sin\theta = \frac{y}{r}, \cos\theta = \frac{x}{r}, \tan\theta = \frac{y}{x}, \csc\theta = \frac{r}{y}, \sec\theta = \frac{r}{x}, \cot\theta = \frac{x}{y}$

$\sin\theta = \cos(90° - \theta)$ $\quad$ $\csc\theta = \sec(90° - \theta)$

$\cos\theta = \sin(90° - \theta)$ $\quad$ $\sec\theta = \csc(90° - \theta)$

$\tan\theta = \cot(90° - \theta)$ $\quad$ $\cot\theta = \tan(90° - \theta)$

$\sin^2\theta + \cos^2\theta = 1$

$c^2 = a^2 + b^2 - 2ab\cos C$

$b^2 = a^2 + c^2 - 2ac\cos B$

$a^2 = b^2 + c^2 - 2bc\cos A$

P(rcosθ, rsinθ) when r = OP

$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

$K = \frac{1}{2}bc\sin A,\ K = \frac{1}{2}ac\sin B,\ K = \frac{1}{2}ab\sin C$

$K = \frac{1}{2}a^2\frac{\sin B\sin C}{\sin A},\ K = \frac{1}{2}b^2\frac{\sin A\sin C}{\sin B},\ K = \frac{1}{2}c^2\frac{\sin A\sin B}{\sin C}$

$K = \sqrt{s(s-a)(s-b)(s-c)}$ where $s = \frac{1}{2}(a+b+c)$

$s = r\theta,\ \ A = \frac{1}{2}r^2\theta$ or $\frac{1}{2}rs$

$v = \frac{s}{t}\ \ \omega = \frac{\theta}{t}\ \ v = \frac{s}{t} = r\frac{\theta}{t} = r\omega$

$\sin s = y,\ \cos s = x,$

$\tan s = \frac{\sin s}{\cos s}, \sec s = \frac{1}{\cos s}, \csc s = \frac{1}{\sin s}, \cot s = \frac{\cos s}{\sin s}$

$a = \frac{M-m}{2}, b = \frac{2\pi}{p}, c = \frac{M+m}{2}$

$1 + \tan^2\alpha = \sec^2\alpha \quad 1 + \cot^2\alpha = \csc^2\alpha$

$\sin(\alpha + \beta) = \sin\alpha\cos\beta + \cos\alpha\sin\beta$

$\sin(\alpha - \beta) = \sin\alpha\cos\beta - \cos\alpha\sin\beta$

$\cos(\alpha + \beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$

$\cos(\alpha - \beta) = \cos\alpha\cos\beta + \sin\alpha\sin\beta$

$\sin 2\alpha = 2\sin\alpha\cos\alpha$

$\cos 2\alpha = \cos^2\alpha - \sin^2\alpha$

$\cos 2\alpha = 2\cos^2\alpha - 1$

$\cos 2\alpha = 1 - 2\sin^2\alpha$

$\sin\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{2}} \qquad \cos\frac{\theta}{2} = \pm\sqrt{\frac{1+\cos\theta}{2}}$

$\tan(\alpha+\beta) = \frac{\tan\alpha + \tan\beta}{1 - \tan\alpha\tan\beta} \qquad \tan(\alpha-\beta) = \frac{\tan\alpha - \tan\beta}{1 + \tan\alpha\tan\beta}$

$\tan 2\alpha = \frac{2\tan\alpha}{1-\tan^2\alpha} \qquad \tan\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{1+\cos\theta}}, \qquad \tan\frac{\theta}{2} = \frac{\sin\theta}{1+\cos\theta}, \qquad \tan\frac{\theta}{2} = \frac{1-\cos\theta}{\sin\theta}$

$\mathbf{u} = a\mathbf{i} + b\mathbf{j}$, $\mathbf{v} = c\mathbf{i} + d\mathbf{j}$, $\mathbf{u} + \mathbf{v} = (a + c)\mathbf{i} + (b + d)\mathbf{j}$, $t\mathbf{u} = ta\mathbf{i} + tb\mathbf{j}$,

$\|\mathbf{u}\| = \sqrt{a^2 + b^2}$, $\mathbf{u} \bullet \mathbf{v} = \|\mathbf{u}\|\,\|\mathbf{v}\|\cos\theta$, $\mathbf{u} \bullet \mathbf{v} = ac + bd$

$x = r\cos\theta,\ y = r\sin\theta,\ r = \sqrt{x^2 + y^2},\ \ \cos\theta = \frac{x}{r},\ \ \sin\theta = \frac{y}{r}$

$z = x + y\boldsymbol{i},\ |z| = \sqrt{x^2 + y^2},\ \bar{z} = x - y\boldsymbol{i},\ z = r(\cos\theta + \boldsymbol{i}\sin\theta)$

$w = a(\cos\alpha + \boldsymbol{i}\sin\alpha),\ z = b(\cos\beta + \boldsymbol{i}\sin\beta),$

$wz = ab[\cos(\alpha + \beta) + \boldsymbol{i}\sin(\alpha + \beta)],\ \frac{w}{z} = \frac{a}{b}[\cos(\alpha - \beta) + \boldsymbol{i}\sin(\alpha - \beta)]$

$z^n = r^n(\cos n\theta + \boldsymbol{i}\sin n\theta),\ \cos\frac{k \bullet 360}{n} + \boldsymbol{i}\sin\frac{k \bullet 360}{n}\ \ k = 0, 1, 2, ..., n - 1$

$y = \mathrm{Cos}^{-1}x$ if and only if $\cos y = x$ and $0 \le y \le \pi$

$y = \mathrm{Sin}^{-1}x$ if and only if $\sin y = x$ and $-\frac{\pi}{2} \le y \le \frac{\pi}{2}$

$y = \mathrm{Tan}^{-1}x$ if and only if $\tan y = x$ and $-\frac{\pi}{2} < y < \frac{\pi}{2}$

$y = \mathrm{Cot}^{-1}x$ if and only if $\cot y = x$ and $0 < y < \pi$

If $|x| \ge 1$, $\mathrm{Sec}^{-1}x = \mathrm{Cos}^{-1}\frac{1}{x}$ and $\mathrm{Csc}^{-1}x = \mathrm{Sin}^{-1}\frac{1}{x}$