Vector equation of a line with cross product	$(\mathbf{r} - \mathbf{a}) \times \mathbf{b} = \mathbf{0}$ where **a** is the position vector of a point the line passes through **b** is the direction vector

Shortest distance between skew lines $l_1 : \mathbf{r} = \mathbf{a} + \lambda\mathbf{b}$ $l_2 : \mathbf{r} = \mathbf{c} + \mu\mathbf{d}$	$\left\| \dfrac{(\mathbf{a} - \mathbf{c}).(\mathbf{b} \times \mathbf{d})}{\|\mathbf{b} \times \mathbf{d}\|} \right\|$

Area of a triangle	$\frac{1}{2}\lvert\mathbf{a}\times\mathbf{b}\rvert$

Area of a parallelogram	$\lvert\mathbf{a}\times\mathbf{b}\rvert$

Volume of a Parallelepiped	$\lvert \mathbf{a}.\mathbf{b} \times \mathbf{c} \rvert$

Volume of a Tetrahedron	$\frac{1}{6}\lvert \mathbf{a}.\mathbf{b} \times \mathbf{c} \rvert$

t-formula for $\sin\theta$ where $t = \tan\frac{\theta}{2}$	$$\sin\theta = \frac{2t}{1+t^2}$$

t-formula for $\cos\theta$ where $t = \tan\frac{\theta}{2}$	$$\cos\theta = \frac{1-t^2}{1+t^2}$$

t-formula for $\tan\theta$ where $t = \tan\frac{\theta}{2}$	$\tan\theta = \dfrac{2t}{1-t^2}$

t-formula for $\frac{\mathrm{d}t}{\mathrm{d}\theta}$ (Weierstrass substitution) where $t = \tan\frac{\theta}{2}$	$\dfrac{\mathrm{d}t}{\mathrm{d}\theta} = \dfrac{1}{2}(1+t^2)$

Simpson's rule for $\int_a^b y \, \mathrm{d}x$	$\approx \frac{1}{3}h\{(y_0 + y_{2n}) + 4(y_1 + ... + y_{2n-1}) + 2(y_2 + ... + y_{2n-2})\}$ where $h = \frac{b-a}{2n}$

Taylor series powers of x	$f(x+a) = \sum_{n=0}^{\infty} \frac{f^{(n)}(a)x^n}{n!}$

Leibnitz's formula for $\dfrac{\mathrm{d}^n y}{\mathrm{d}x^n}$	$\dfrac{\mathrm{d}^n y}{\mathrm{d}x^n} = \sum_{k=0}^{n} \binom{n}{k} \dfrac{\mathrm{d}^k u}{\mathrm{d}x^k} \dfrac{\mathrm{d}^{(n-k)} u}{\mathrm{d}x^{(n-k)}}$

3×3 matrix for reflection in the plane $x = 0$	$\begin{pmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

3×3 matrix for reflection in the plane $y = 0$	$\begin{pmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

3×3 matrix for reflection in the plane $z = 0$	$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$

3×3 matrix for rotation about the x-axis	$\begin{pmatrix} 1 & 0 & 0 \\ 0 & \cos\theta & -\sin\theta \\ 0 & \sin\theta & \cos\theta \end{pmatrix}$

3×3 matrix for rotation about the y-axis	$\begin{pmatrix} \cos\theta & 0 & \sin\theta \\ 0 & 1 & 0 \\ -\sin\theta & 0 & \cos\theta \end{pmatrix}$

3×3 matrix for rotation about the z-axis	$\begin{pmatrix} \cos\theta & -\sin\theta & 0 \\ \sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{pmatrix}$

Complex loci $\lvert z-a\rvert = b$	Circle centre a, radius b

Complex loci $\lvert z-a\rvert = \lvert z-b\rvert$	Perpendicular bisector of the line joining the complex numbers a and b

Complex loci $\arg(z-a) = \beta$	Half line from the complex number a at an angle of β to the real axis

Direction cosines of the line $\mathbf{r} = \mathbf{a} + \lambda\mathbf{b}$, where $\mathbf{b} = \begin{pmatrix} x \\ y \\ z \end{pmatrix}$	The angle that the line makes with the axes. Angle with the x-axis, α $cos\alpha = \frac{x}{\lvert b \rvert}$ Angle with the y-axis, β $cos\beta = \frac{y}{\lvert b \rvert}$ Angle with the z-axis, γ $cos\gamma = \frac{z}{\lvert b \rvert}$

Polar graph $r = p\sec(\alpha - \theta)$	Straight line Convert into $y = mx + c$ using the addition formula for cosine

Polar graph $r = a$	Circle centre the pole, radius a

Polar graph $r = 2a\cos\theta$	Circle centre $(a, 0)$, radius a One symmetric petal

Polar graph $r = \theta$	Spiral centred at origin

Polar graph $r = a\cos n\theta$	Only considering $r \geqslant 0$ Rose with n petals spaced at $\frac{2\pi}{n}$ starting at $(a, 0)$

Polar graph $r = p + q\cos\theta$ $q \leqslant p < 2q$	Concave curve “dimple” shaped limaçon
Polar graph $r = p + q\cos\theta$ $p = q$	Cardioid

Polar graph $r = p + q\cos\theta$ $p \geqslant 2q$	Convex curve “egg” shaped limaçon

Polar graph $r^2 = a^2 \cos 2\theta$	Leminscate (figure-8 shaped) starting at $(a, 0)$