$\sin A \quad = \sin(180^\circ - A), \qquad \operatorname{cosec} A \quad = \operatorname{cosec}(180^\circ - A);$

$L \sin A = L \sin(180^\circ - A), \qquad L \operatorname{cosec} A = L \operatorname{cosec}(180^\circ - A;$

$\cos A \quad = -\cos(180^\circ - A), \qquad \sec A \quad = -\sec(180^\circ - A);$

$\tan A \quad = -\tan(180^\circ - A), \qquad \cot A \quad = -\cot(180^\circ - A).$

General formulas,

$$\sin(A+B) = \sin A \cos B + \cos A \sin B \quad \ldots\ldots \quad (4)$$

$$\sin(A-B) = \sin A \cos B - \cos A \sin B \quad \ldots\ldots \quad (5)$$

$$\cos(A+B) = \cos A \cos B - \sin A \sin B \quad \ldots\ldots \quad (6)$$

$$\sin A = 2 \sin \tfrac{1}{2} A \cos \tfrac{1}{2} A \quad \ldots\ldots \quad (7)$$

$$\cos A = 2 \cos^2 \tfrac{1}{2} A - 1 = 1 - 2 \sin^2 \tfrac{1}{2} A \quad \ldots\ldots \quad (8)$$

$$\frac{\sin A + \sin B}{\sin A - \sin B} = \frac{\tan \frac{1}{2}(A+B)}{\tan \frac{1}{2}(A-B)} \quad \ldots\ldots \quad (9)$$

In any triangle ABC,

$$A + B + C = 180^\circ \quad \ldots\ldots \quad (1)$$

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \quad \ldots\ldots \quad (2)$$

$$c = a \cos B + b \cos A \quad \ldots\ldots \quad (3)$$

$$\left.\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ \cos A &= \frac{b^2 + c^2 - a^2}{2bc} \end{aligned}\right\} \quad \ldots\ldots \quad (10)$$

$$\left.\begin{aligned} \sin \tfrac{1}{2} A &= \sqrt{\frac{(s-b)(s-c)}{bc}} \\ \cos \tfrac{1}{2} A &= \sqrt{\frac{s(s-a)}{bc}} \end{aligned}\right\} \quad \ldots\ldots \quad (11)$$

$$\tan \tfrac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}} \quad \ldots\ldots \quad (12)$$

$$\tan \tfrac{1}{2}(A-B) = \frac{a-b}{a+b} \cot \tfrac{1}{2} C.$$

Area of triangle $= \frac{1}{2}$ (*base* $\times$ *height*)

$= \frac{1}{2} bc \sin A$

$= \sqrt{\{ s(s-a)(s-b)\, s-c) \}}.$