

$$\begin{aligned}
 2) * \sin^{-1}x + \sin^{-1}y &= \sin^{-1}(x\sqrt{1-y^2} + y\sqrt{1-x^2}) \\
 * \sin^{-1}x - \sin^{-1}y &= \sin^{-1}(y\sqrt{1-x^2} - x\sqrt{1-y^2}) \\
 * \cos^{-1}x + \cos^{-1}y &= \cos^{-1}(xy - \sqrt{1-x^2}\sqrt{1-y^2}) \\
 * \cos^{-1}x - \cos^{-1}y &= \cos^{-1}(xy + \sqrt{1-x^2}\sqrt{1-y^2}) \\
 * \tan^{-1}x + \cot^{-1}x &= \frac{\pi}{2} \\
 * \tan^{-1}x + \tan^{-1}y &= \tan^{-1} \frac{x+y}{1-xy} \\
 * \tan^{-1}x - \tan^{-1}y &= \tan^{-1} \frac{x-y}{1+xy} \\
 * 2\tan^{-1}x &= \tan^{-1} \frac{2x}{1-x^2} \\
 * 2\tan^{-1}x &= \cos^{-1} \frac{1-x^2}{1+x^2} \\
 * 2\tan^{-1}x &= \sin^{-1} \frac{2x}{1+x^2}
 \end{aligned}$$

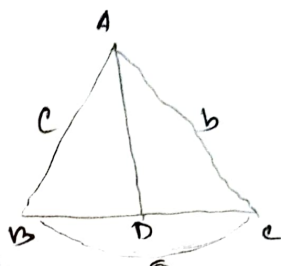
$$1) \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$$

Area

$$2) a = c \cos B + b \cos C$$

$$b = a \cos C + c \cos A$$

$$c = a \cos B + b \cos A$$



$$3) \cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

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

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

$$4) \cos \frac{A}{2} = \sqrt{\frac{s(s-a)}{bc}}$$

$$\cos \frac{B}{2} = \sqrt{\frac{s(s-b)}{ac}}$$

$$\cos \frac{C}{2} = \sqrt{\frac{s(s-c)}{ab}}$$

$$5) \sin \frac{A}{2} = \sqrt{\frac{(s-b)(s-c)}{bc}}$$

$$\sin \frac{B}{2} = \sqrt{\frac{(s-a)(s-c)}{ac}}$$

$$\sin \frac{C}{2} = \sqrt{\frac{(s-a)(s-b)}{ab}}$$

$$6) 4 \sin^3 A = 3 \sin A - \sin 3A$$

$$4 \cos^3 A = 3 \cos A + \cos 3A$$