

WZORY ANL1

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

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

$$\cos \alpha \cdot \cos \beta = \frac{1}{2} [\cos(\alpha + \beta) + \cos(\alpha - \beta)]$$

$$\sin \alpha \cdot \sin \beta = \frac{1}{2} [\cos(\alpha - \beta) - \cos(\alpha + \beta)]$$

$$\sin \alpha \cdot \cos \beta = \frac{1}{2} [\sin(\alpha + \beta) + \sin(\alpha - \beta)]$$

$$(x^a)' = ax^{a-1}$$

$$(a^x)' = a^x \cdot \ln a$$

$$(\log_a x)' = \frac{1}{x \cdot \ln a}$$

$$(\sin x)' = \cos x$$

$$(\cos x)' = -\sin x$$

$$(\operatorname{tg} x)' = \frac{1}{\cos^2 x} = \operatorname{tg}^2 x + 1$$

$$(\operatorname{ctg} x)' = -\frac{1}{\sin^2 x} = -\operatorname{ctg}^2 x - 1$$

$$(\arcsin x)' = \frac{1}{\sqrt{1-x^2}} = -(\arccos x)'$$

$$(\operatorname{arctg} x)' = \frac{1}{x^2 + 1} = -(\operatorname{arcctg} x)'$$

$$(f \cdot g)' = f' \cdot g + f \cdot g'$$

$$\left(\frac{f}{g}\right)' = \frac{f' \cdot g - f \cdot g'}{g^2}$$

$$\int f' \cdot g = f \cdot g - \int f \cdot g'$$

$$\int \frac{dx}{x^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C, \quad a \neq 0$$

$$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + C, \quad a \neq 0$$

$$\int \frac{dx}{\sqrt{x^2 + k}} = \ln |x + \sqrt{x^2 + k}| + C$$

$$\int \sqrt{x^2 + k} \, dx = \frac{k}{2} \ln |x + \sqrt{x^2 + k}| + \frac{x}{2} \sqrt{x^2 + k} + C$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \arcsin \frac{x}{a} + C, \quad a \neq 0$$

$$\int \sqrt{a^2 - x^2} \, dx = \frac{a^2}{2} \arcsin \frac{x}{a} + \frac{x}{2} \sqrt{a^2 - x^2} + C, \quad a \neq 0$$