$$\int \frac{f'}{f}\,dx = \ln|f| + C$$

$$\left| \begin{array}{l} t = f \\ dt = f'\,dx \end{array} \right|$$

$t = \arcsin\frac{x}{a}$

$$\int f(\alpha x+\beta)\,dx = \left| \, t = \alpha \cancel{x} + \beta \, \right| = \frac{1}{\alpha}\cdot F_{(\alpha x+\beta)}$$

$+C$

$$\sqrt{\square^2}$$

$$5 - x^2 = 5 \cdot \left(1 - \frac{x^2}{5}\right)$$

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

$$\cos^2 t = \underbrace{1 - \sin^2 t}$$

$$\frac{x^2}{5} = \sin^2 t$$

$$x^2 = 5 \cdot \sin^2 t$$

$$\boxed{x = \sqrt{5} \cdot \sin t}$$

$$\frac{\sin 2t}{2} = \frac{\cancel{2} \cdot \sin t \cdot \cos t}{\cancel{2}}$$

$$\int \sqrt{5 - 7x^2}\, dx = \int \sqrt{7 \cdot \left(\frac{5}{7} - x^2\right)}\, dx$$

$$= \sqrt{7} \cdot \int \sqrt{\frac{5}{7} - x^2}\, dx = \left| \, x = \sqrt{\frac{5}{7}} \cdot \sin t \, \right|$$

$$\boxed{\int \frac{1}{A^2+x^2}\,dx = \frac{1}{A}\cdot \operatorname{arctg}\frac{x}{A} + C}$$

$$\int \frac{1}{A^2-x^2}\,dx = \ldots$$

$$\int \frac{1}{4+x^2}\,dx = \frac{1}{4}\cdot\int \frac{1}{1+\frac{x^2}{4}}\,dx =$$

$$= \frac{1}{4}\cdot\int \frac{1}{1+\left(\frac{x}{2}\right)^2}\,dx = \left| \begin{array}{l} t=\frac{x}{2} \\ dt=\frac{1}{2}dx \\ dx=2\cdot dt \end{array} \right| = \frac{1\cdot 2}{4}\cdot\int \frac{1\cdot dt}{1+t^2}$$

$$= \frac{1}{2}\cdot \operatorname{arctg}\frac{x}{2}+c$$

$2x+p$

$$\frac{2}{2}\int x \, \underline{\hspace{4cm}}$$

$$\int \frac{1}{(a^2+D^2)^n}\,da = \int \frac{1 \cdot da}{\left[D^2 \cdot \left(\frac{a^2}{D^2}+1\right)\right]^n} =$$

$$= \frac{1}{D^{2n}} \int \frac{da}{\left[\left(\frac{a}{D}\right)^2+1\right]^n}$$

$$\frac{\sin^2 x + 3\cdot\sin^3 x - 8\cdot\cos^5 x}{4\cdot\cos^2 x - 8} = R(\sin x, \cos x)$$

$\sin x \Rightarrow (-\sin x)$

$$\frac{(-\sin x)^2 + 3\cdot(-\sin x)^3 - 8\cdot\cos^5 x}{4\cdot\cos^2 x - 8}$$

$$\sin^8 x = \left(1 - \cos^2 x\right)^4 =$$

$$= \left(1 - t^2\right)^4$$

$$\int \sin^2 x \cdot \cos^2 x \cdot \sin x \, dx =$$

$$= \left| \begin{array}{l} t = \cos x \\ dt = -\sin x \, dx \\ -dt = \sin x \, dx \end{array} \right| = \int (1-t^2) \cdot t^2 \cdot (-1) \cdot dt$$

$$\frac{1}{1+3\cdot(\cos x)^2}$$

$$\int \cos 2x - \cos^3 2x \, dx = \left| \begin{array}{l} t = \sin 2x \\ dt = 2\cos 2x \, dx \\ \frac{1}{2} dt = \cos 2x \, dx \end{array} \right|$$

$$= \int \left[1 - \cos^2(2x)\right] \cdot \cos 2x \, dx$$

$$= \int \left(1 - 1 + t^2\right) \cdot \frac{1}{2} dt = \frac{1}{2} \int t^2 dt = \ldots$$