

$$\int \frac{1}{\cos X} dX$$

$$= \int \frac{\cos X}{\cos^2 X} dX$$

$$= \int \frac{\cos X}{1 - \sin^2 X} dX$$

$$t = \sin X \text{ とおくと}$$

$$dt = \cos X dX$$

$$\text{よって } \left(\int \frac{1}{\cos X} dX \right) = \int \frac{1}{1-t^2} dt$$

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

$$= \frac{1}{2} (-\log |1-t| + \log |1+t|) + C$$

$$= \frac{1}{2} \log \left| \frac{1+t}{1-t} \right| + C$$

$$= \frac{1}{2} \log \left(\frac{1+\sin X}{1-\sin X} \right) + C$$