

$$\text{例 2: } \int \frac{1}{2-e^x} dx$$

$$= \int \frac{e^{-x}}{e^{-x}(2-e^x)} dx$$

$$= \int \frac{e^{-x}}{2e^{-x}-1} dx$$

$$\hat{=} 2e^{-x}-1 = u$$

$$d(2e^{-x}-1) = du$$

$$(2e^{-x}-1)' dx = du$$

$$2e^{-x} \cdot (-1) dx = du$$

$$e^{-x} dx = -\frac{1}{2} du$$

$$\int \frac{e^{-x}}{2e^{-x}-1} dx$$

$$= \int \frac{1}{u} \cdot \left(-\frac{1}{2}\right) du$$

$$= -\frac{1}{2} \ln |u| + C$$

$$= -\frac{1}{2} \ln |2e^{-x}-1| + C$$