

$$\underline{Q} \quad \therefore A = - \int \frac{e^{-x} \cos x \cdot e^{-x} \sin x}{e^{-2x}} dx + K,$$

$$\therefore e^a \cdot e^b = e^{a+b} \quad \underline{\text{so}} \quad e^{-x} \cdot e^{-x} = e^{-x-x} = e^{-2x}$$

$$\underline{\text{and}} \quad a^{-b} = \frac{1}{a^b} \quad \underline{\text{so}} \quad \frac{1}{e^{-2x}} = e^{2x}$$

$$A = - \int \frac{e^{-2x} \cos x \sin x}{e^{-2x}} dx + K,$$

$$A = - \int \cos x \sin x dx + K,$$

$$\text{Put } \cos x = t$$

$$-\sin x dx = dt$$

$$A = + \int t dt + K,$$

$$A = \frac{t^2}{2} + K, \quad \Rightarrow \quad A = \frac{(\cos x)^2}{2} + K,$$