

部分積分

$$\begin{aligned} I &= ([x^3 e^x]_0^1 - \int_0^1 3x^2 e^x dx) \\ &= 1 - 3([x^2 e^x]_0^1 - \int_0^1 2x e^x dx) \end{aligned}$$

$$\begin{aligned} &= -2 + 6([xe^x]_0^1 - \int_0^1 e^x dx) \\ &= 4 - 6[e^x]_0^1 = -2 + 6e \end{aligned}$$