

部分積分

$$\begin{aligned} I &= \frac{2}{3} \left(x^{\frac{3}{2}} \log x - \int x^{\frac{3}{2}} \frac{1}{x} dx \right) \\ &= \frac{2}{3} \left(x^{\frac{3}{2}} \log x - \int x^{\frac{1}{2}} dx \right) \\ &= \frac{2}{3} \left(x^{\frac{3}{2}} \log x - \frac{2}{3} x^{\frac{3}{2}} x^{\frac{1}{2}} \right) + C \end{aligned}$$

$$= \frac{2}{3} x^{\frac{3}{2}} \left(\log x - \frac{2}{3} \right) + C$$