

⑦

$$V_1 = - \int \frac{x^2 \cdot x^2 \ln x}{x^2} dx = - \int x \ln x dx$$

$$= - \frac{x^2}{2} (\ln x - 1)$$

$$V_2 = \int \frac{x^2 \ln x}{x^2} dx = \int \ln x dx = x \ln x - x$$

$$\therefore y_1 = - \frac{x^2}{2} (\ln x - \frac{1}{2}) + x^2 [x \ln x - x]$$

$$= \frac{1}{2} x^2 \ln x - \frac{3}{4} x^2 = \frac{x^2}{2} [\ln x - \frac{3}{2}]$$

etc.