$$\int \ln x \, dx$$

Solution

Integrate by parts with $u = \ln x$ and $dv = dx$. So $du = \frac{1}{x}\, dx$ and $v = x$. Thus,

$$\int \ln x \, dx = x \ln x - \int x \cdot \frac{1}{x}\, dx = x \ln x - \int 1 \, dx = x \ln x - x + C.$$