

1 | $\int \ln x dx$

$$\begin{aligned}\int \ln x dx &= \int 1 \ln x dx \\&= x \ln x - \int x \frac{1}{x} dx \\&= x \ln x - \int 1 dx \\&= \boxed{x \ln x - x}\end{aligned}$$

2 | $\int \tan^{-1} x dx$

$$x \tan^{-1} x$$