$$\int \ln(x^2-4)\,dx = \int \underbrace{1}_{dv} \times \underbrace{\ln(x^2-4)\,dx}_{u}$$

$u = \ln(x^2-4) \qquad du = \frac{1}{x^2-4} \cdot 2x\,dx \qquad dv = 1 \qquad v = x$

$$\ln(x^2-4)\cdot x - \int x \cdot \frac{1}{x^2-4} \cdot 2x\,dx$$

$$\ln(x^2-4)\cdot x - 2\int \frac{x^2}{x^2-4}\,dx$$

$$\ln(x^2-4)\,x - 2\int \frac{x^2-4+4}{x^2-4}\,dx$$

$$\ln(x^2-4)\,x - 2\left(\int \frac{x^2-4}{x^2-4}\,dx + \frac{4}{x^2-4}\,dx\right)$$

$$\ln(x^2-4)\,x - 2\left(x + \ln\left(\left|\frac{x-2}{x+2}\right|\right)\right)$$

$$\ln(x^2-4)\,x - 2x - 2\ln\left(\left|\frac{x-2}{x+2}\right|\right)$$

$$\ln(x^2-4)\cdot x - 2x - 2\ln\left(\left|\frac{x-2}{x+2}\right|\right) + C, \quad C \in \mathbb{R}$$