Problem:

$$\int \frac{\ln\left(\frac{x-1}{x+1}\right)}{x^2-1}\,\mathrm{d}x$$

Substitute $u = \ln\left(\dfrac{x-1}{x+1}\right) \longrightarrow$

$$\frac{\mathrm{d}u}{\mathrm{d}x} = \frac{(x+1)\left(\frac{1}{x+1} - \frac{x-1}{(x+1)^2}\right)}{x-1}$$ (steps) $\longrightarrow$

$$\mathrm{d}x = \frac{x-1}{(x+1)\left(\frac{1}{x+1} - \frac{x-1}{(x+1)^2}\right)}\,\mathrm{d}u:$$

$$\int \frac{u\mathrm{e}^u}{\left(\left(-\frac{2}{\mathrm{e}^u-1} - 1\right)^2 - 1\right)\left(\frac{\left(\frac{2}{\mathrm{e}^u-1}+2\right)(\mathrm{e}^u-1)^2}{4} - \frac{\mathrm{e}^u-1}{2}\right)}$$

Simplify:

$$= \frac{1}{2}\int u\,\mathrm{d}u$$

Now solving:

$$\int u\,\mathrm{d}u$$

Apply power rule:

$$\int u^{\mathrm{n}}\,\mathrm{d}u = \frac{u^{\mathrm{n}+1}}{\mathrm{n}+1}$$ with $\mathrm{n} = 1$:

$$= \frac{u^2}{2}$$

Plug in solved integrals:

$$\frac{1}{2}\int u \, \mathrm{d}u$$

$$= \frac{u^2}{4}$$

Undo substitution $u = \ln\left(\frac{x-1}{x+1}\right)$:

$$= \frac{\ln^2\left(\frac{x-1}{x+1}\right)}{4}$$

The problem is solved:

$$\int \frac{\ln\left(\frac{x-1}{x+1}\right)}{x^2-1} \, \mathrm{d}x$$

$$= \frac{\ln^2\left(\frac{x-1}{x+1}\right)}{4} + C$$