$$y = \ln\left(\frac{e^x+1}{e^x-1}\right) = \ln(e^x+1) - \ln(e^x-1) \quad \Rightarrow$$

$$y' = \frac{e^x}{e^x+1} - \frac{e^x}{e^x-1} = \frac{-2e^x}{e^{2x}-1} \quad \Rightarrow \quad 1+(y')^2 = 1 + \frac{4e^{2x}}{(e^{2x}-1)^2}$$

$$= \frac{(e^{2x}+1)^2}{(e^{2x}-1)^2} \quad \Rightarrow \quad \sqrt{1+(y')^2} = \frac{e^{2x}+1}{e^{2x}-1} = \frac{e^x+e^{-x}}{e^x-e^{-x}} = \frac{\cosh(x)}{\sinh(x)}.$$

So $L = \int_a^b \frac{\cosh(x)}{\sinh(x)}\,dx = \Big[\ln\sinh(x)\Big]_a^b = \ln(\sinh(b)) - \ln(\sinh(a)) = \ln\left(\frac{\sinh(b)}{\sinh(a)}\right) =$

$$\ln\left(\frac{e^b-e^{-b}}{e^a-e^{-a}}\right).$$