Provide a clear and organized presentation. Show all of your work and give exact values only. Completely simplify all values.

Consider the graph of $y = f(x)$ where $f(x) = \cosh x$ and the graph of $y = g(x)$ where $g(x) = ax^2 + bx + c$, each over the interval $[-\ln 2, \ln 2]$. We wish to find constants *a*, *b*, and *c* such that both *f* and *g* agree at the endpoints of this interval and the arc length for the hyperbolic curve is numerically equal to the area underneath the parabolic curve. Assume that the graph of $y = g(x)$ is symmetric with respect to the *y*-axis. Provide exact values only.