$$
\begin{aligned}
\mathrm{gd}(w) &= \theta \\
\cosh(w) &= \sec(\theta) = \gamma \\
\sinh(w) &= \tan(\theta) = \beta\gamma \\
\tanh(w) &= \sin(\theta) = \beta \\
\operatorname{sech}(w) &= \cos(\theta) = 1/\gamma \\
\operatorname{csch}(w) &= \cot(\theta) = 1/\beta\gamma \\
\coth(w) &= \csc(\theta) = 1/\beta
\end{aligned}
$$