

Exercise 5

Find the numerical value of each expression.

(a) $\operatorname{sech} 0$ (b) $\cosh^{-1} 1$

Solution**Part (a)**

Use the definition of hyperbolic secant listed on page 259.

$$\operatorname{sech} 0 = \frac{1}{\cosh 0} = \frac{1}{\frac{e^0 + e^0}{2}} = \frac{2}{e^0 + e^0} = \frac{2}{1 + 1} = 1$$

Part (b)

Use the definition of inverse hyperbolic cosine listed on page 262.

$$\cosh^{-1} 1 = \ln \left(1 + \sqrt{1^2 - 1} \right) = \ln(1 + 0) = 0$$