

Exercise 37

Find the derivative. Simplify where possible.

$$y = e^{\cosh 3x}$$

Solution

Take the derivative using the chain rule repeatedly.

$$\begin{aligned} y' &= \frac{d}{dx}(e^{\cosh 3x}) \\ &= e^{\cosh 3x} \cdot \frac{d}{dx}(\cosh 3x) \\ &= e^{\cosh 3x} \cdot (\sinh 3x) \cdot \frac{d}{dx}(3x) \\ &= e^{\cosh 3x} \cdot (\sinh 3x) \cdot (3) \\ &= 3e^{\cosh 3x} \sinh 3x \end{aligned}$$