

Exercise 76

Find f' in terms of g' .

$$f(x) = e^{g(x)}$$

Solution

Calculate $f'(x)$ by using the chain rule.

$$\begin{aligned} f'(x) &= \frac{d}{dx} \left[e^{g(x)} \right] \\ &= e^{g(x)} \cdot \left[\frac{d}{dx} g(x) \right] \\ &= e^{g(x)} \cdot g'(x) \\ &= e^{g(x)} g'(x) \end{aligned}$$