

**Exercise 73**

Find  $f'$  in terms of  $g'$ .

$$f(x) = [g(x)]^2$$

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**Solution**

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

$$\begin{aligned} f'(x) &= \frac{d}{dx}[g(x)]^2 \\ &= 2[g(x)]^1 \cdot \left[ \frac{d}{dx}g(x) \right] \\ &= 2g(x) \cdot g'(x) \\ &= 2g(x)g'(x) \end{aligned}$$