

Exercise 72

Find f' in terms of g' .

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

Solution

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

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