Exercise 12

Calculate y'.

$$y = (\arcsin 2x)^2$$

Solution

Calculate y' by using the chain rule repeatedly.

$$\begin{aligned} y' &= \frac{d}{dx}(\arcsin 2x)^2 \\ &= 2(\arcsin 2x)^1 \cdot \frac{d}{dx}(\arcsin 2x) \\ &= 2(\arcsin 2x) \cdot \frac{1}{\sqrt{1-(2x)^2}} \cdot \frac{d}{dx}(2x) \\ &= 2(\arcsin 2x) \cdot \frac{1}{\sqrt{1-4x^2}} \cdot (2) \\ &= \frac{4 \arcsin 2x}{\sqrt{1-4x^2}} \end{aligned}$$