Exercise 11

Find the derivative of the function.

$$f(\theta) = \cos(\theta^2)$$

Solution

Take the derivative using the chain rule.

$$\begin{aligned} f'(\theta) = \frac{df}{d\theta} &= \frac{d}{d\theta}[\cos(\theta^2)] \\ &= -\sin(\theta^2) \cdot \frac{d}{d\theta}(\theta^2) \\ &= -\sin(\theta^2) \cdot (2\theta) \\ &= -2\theta \sin(\theta^2) \end{aligned}$$