

Exercise 12

Find the derivative of the function.

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

Solution

Take the derivative using the chain rule.

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