

# The Derivatives of the Trigonometric Functions

## Problem 1

Find the derivative of the function  $f(x) = \tan^2(x)$ . Then find the second derivative of  $f(x) = \tan^2(x)$ .

## Problem 2

Find the derivative of  $f(x) = x^2 \sin(x)$  at the point  $x = \frac{\pi}{2}$ . Determine the line tangent to the curve  $y = x^2 \sin(x)$  at the point  $x = \frac{\pi}{2}$ .