

The Chain Rule

Problem 1

Use the chain rule to find the derivative of $g(x) = (2\sqrt{x} + 1)^2$.

Verify your answer by finding the derivative of $(2\sqrt{x} + 1)^2 = (2\sqrt{x} + 1)(2\sqrt{x} + 1) = 4x + 4\sqrt{x} + 1$.

Problem 2

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

Problem 3

Use the chain rule to find the derivative of $e^{\sqrt{2x-1}}$.