

PROBLEM

You already know that $\frac{d}{dx} \left(\frac{f(x)}{g(x)} \right) = \frac{g(x) f'(x) - f(x) g'(x)}{(g(x))^2}$.

Expressing $\frac{f(x)}{g(x)} = f(x) \cdot [g(x)]^{-1}$, differentiate this latter form to show agreement with the Quotient Rule.

The background is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered in the middle of the page.

LESSON 2.6

IMPLICIT DIFFERENTIATION

WARM UP

Differentiate the following expressions with respect to x . Be sure to treat y as a **function** of x .

(a) x^3

(b) y^3

(c) $x \sin y$

(d) $\tan xy$