

PROBLEM

Use the Quotient Rule to prove

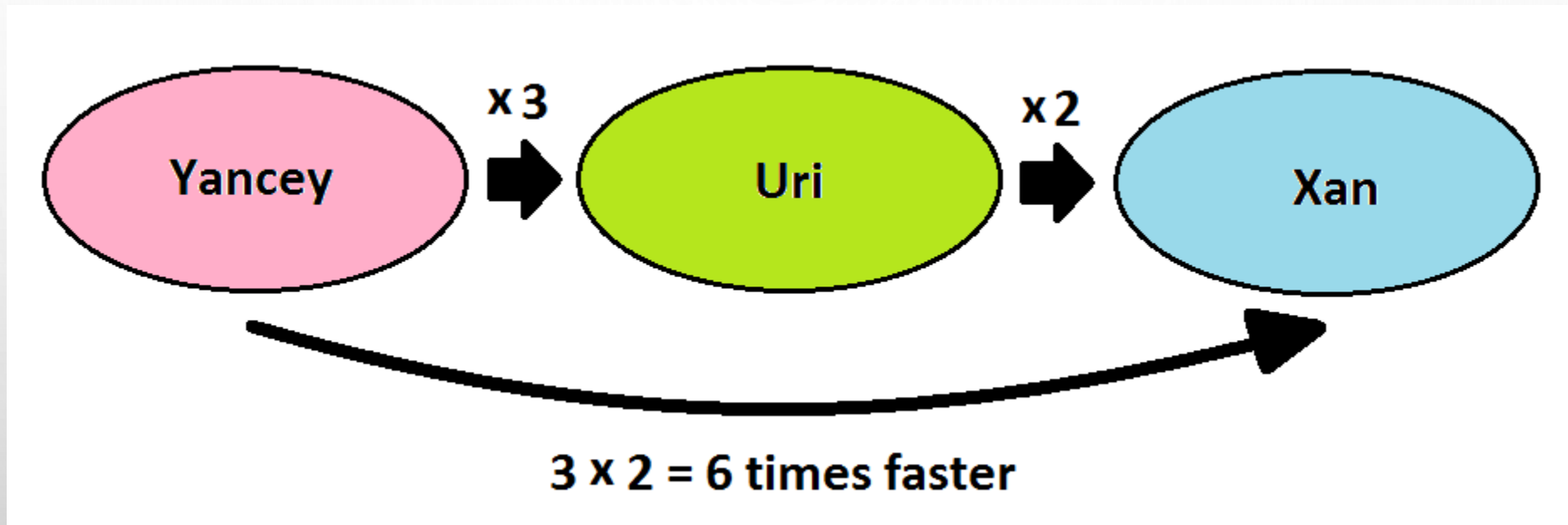
that $\frac{d}{dx}(\sec x) = \sec x \tan x.$

The background features a light gray gradient with several realistic water droplets of various sizes scattered across the surface. A faint, large circular pattern is visible in the upper center, resembling a ripple or a lens flare.

LESSON 2.5

CHAIN RULE

APPLE PICKING



$$\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx} = 3 \cdot 2 = 6$$

WARM UP

Consider the function $y = (x^2 + 4)^2$.

You now have two different ways to differentiate this function. Show that the final answers agree.

PROBLEM (LEVEL I)

Find the derivative.

(a) $y = (7x + 4)^4$

(c) $y = \sec(x^2 + 3)$

(b) $y = \sqrt{5x - 2}$

(d) $y = \sqrt{x + \sqrt{x}}$