

## SECTION 3-6: THE CHAIN RULE

Read Section 3.6. Work the embedded problems.

### 1. Two Versions of the Chain Rule

2. Use version **B** to find  $\frac{dy}{dx}$  if  $y = 3\sqrt{u}$  and  $u = \cos(x) + 1$ .

3. For each function below, decompose the function into the form  $y = f(u)$  and  $u = g(x)$  and then find  $\frac{dy}{dx}$  using version **B**.

(a)  $y = (3x - 5)^8$

(b)  $y = \frac{1}{x^3 + \tan(x)}$

4. Find  $\frac{dy}{dx}$  using version A.

(a)  $y = \left(\frac{1}{x^2} + \frac{x^2}{3}\right)^4$

(b)  $y = \cos(2x)$

(c)  $y = \sqrt{x^2 + \sin(x)}$

(d)  $y = x \tan\left(\frac{\pi x}{4}\right)$

(e)  $y = \frac{x}{\sin^2(x)}$