

2.4 – The Chain Rule, Part I

Suppose f and g are differentiable functions of x .

$$\text{The Chain Rule: } \frac{d}{dx} [f(g(x))] =$$

Differentiate.

1. $y = \sqrt{3x^2 - 4x}$

2. $g(\theta) = \tan^3 \theta$

3. $h(x) = \csc(1-x)$

4. $c(v) = 4e^{\frac{1}{v^2}}$

5. $P = \frac{2}{(1 - \csc x)^4}$

6. $y = \sqrt{(f(x))^2}$, where f is differentiable

(What derivative rule does the result of #6 provide for us?)

7. $y = (3x + 2)^5 (2x - 5)^7$

8. $r(x) = \left(\frac{1 - x^2}{6x + 1} \right)^4$