

Sample Problems: Find the derivative of each function.

i. $g(x) = 4(5x^3 + 2)^6$

ii. $g(x) = \sqrt{4x^2 + 1}$

The Chain Rule

If a function is the composition of two other functions, then the derivative is found using the rule:

$$h(x) = g(f(x))$$

$$h'(x) =$$

Try These:

Differentiate each function.

a $y = (x^2 - 4x)^3$

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

c $y = \frac{2}{\sqrt{1-3x}}$

1 $f(x) = (3x^4 + 2x)^5$

2 $f(x) = 4(2x^2 + 3x + 1)^3$

3 $f(x) = \frac{4}{x^2 + 3}$

4 $f(x) = \sqrt[3]{2x + 3}$

7 $f(x) = (9x + 2)^{\frac{2}{3}}$

8 $f(x) = \sqrt[4]{2x^2 + 3}$

9 $f(x) = 5(x^3 + 3x)^4$

10 $f(x) = \frac{1}{x^2 - 3x - 2}$

