

Name: _____

Date: _____

Learning Goal 3.1

Using all basic derivative rules.

Example Differentiate the following.

a. $y = (4x^2 - 1)^2$

b. $y = (4x^2 - 1)^4$

The Chain Rule**Example** Determine the 'inner' and 'outer' functions, then find the derivative.

a. $y = (2x + 1)^3$

b. $f(x) = \sqrt{x^3 - 2x}$

c. $g(x) = \frac{1}{(x^2 - 1)^3}$

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

Example Given

$f(2) = -1$

$f(-1) = 3$

$f'(2) = 4$

$f'(-1) = 5$

$g(2) = 2$

$g(-1) = -2$

$g'(-1) = 0$

$g'(2) = 7$

Find the following derivatives, if possible.

a. $(f \circ g)'(2)$

b. $(f \circ f)'(2)$

c. $(g \circ f)'(-1)$