4.6 Product, Quotient, and Chain Rules

Chain Rule

f(x) = a(b(x)) → f'(x) = a'(b(x))b'(x)

Product Rule

f(x) = a(x)b(x) → f'(x) = a'(x)b(x) + a(x)b'(x)

Quotient Rule

f(x) = a(x)/b(x) → $f'(x) = \frac{a'(x)b(x) - a(x)b'(x)}{b^2(x)}$

Day 1 - Chain Rule

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

b. $y = \frac{4}{\sqrt{1-2x}}$

c. The derivative of $f(x) = (2x - b)^a$ where $a, b \in \mathbb{R}$ is $f'(x) = 24x^2 - 24x + 6$, find a and b.

p.444#3,4,6,7

Day 2 - Product and Quotient Rule

Ex 1a) f(x)=$(5x^3+7x^2+3)(2x^2+x+6)$

(b) $f(x) = \frac{2x+5}{3x-1}$

(c) f(x)=$(x^2+3x+5)^6$

Ex 2a) f(x) = $(x^2+3)^4(4x-5)^3$

(b) $f(x) = \left(\frac{1+x^2}{1-x^2}\right)^{10}$

p.446#1,2,6
p.449#1,2,6