

Homework II First-Half

Due in class June 06 2017

0. Read The Following Sections:

Chapter 6. Differentiation: Section 6.8 Chain Rule, 6.9 Higher-Order Derivatives

1. Find the derivative of $f(x) = -\sqrt{x^2 + 1}$
2. Find the derivative of $f(x) = \frac{(x-1)^2}{(x+1)^2}$
3. Find the derivative of $f(x) = \sqrt{x + \sqrt{x + \sqrt{x}}}$
4. Find $g''(2)$ where $g(t) = \frac{t^2}{t-1}$
5. Find the intervals on which $f(x) = x^3 - 2x^2 + 3x - 4$ is convex.
6. If $u(y)$ denotes an individual's utility of having income y , then

$$R = -\frac{yu''(y)}{u'(y)}$$

is the coefficient of relative risk aversion. Compute R when $u(y) = A_1 - A_2y^{-2}$, where A_1, A_2 are nonzero constants.