Chapter 4.1: Using First and Second Derivatives

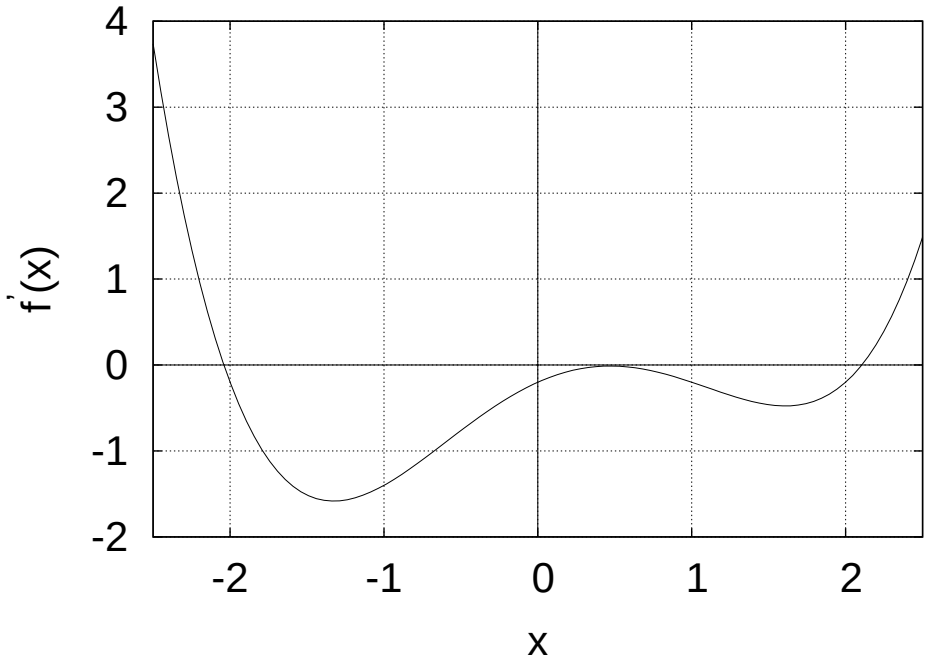
Calculus I

College of the Atlantic. Fall 2016

1. Consider the function $f(x) = -x^2 + 6x - 5$.

   (a) Find and classify all critical points. Determine any local maxima or minima (x and y values).
   (b) Find all inflection points.
   (c) Sketch the function.

2. In the figure is show a plot of a function's derivative. Find and classify all critical points. Find any inflection points. Sketch $f(x)$.



3. Consider the function $h(x) = x + \sin(x)$.

   (a) Find and classify all critical points. Determine any local maxima or minima (x and y values).
   (b) Find all inflection points.
   (c) Sketch the function.

4. Consider the function $g(x) = xe^x$.

   (a) Find and classify all critical points. Determine any local maxima or minima (x and y values).
   (b) Find all inflection points.
   (c) Sketch the function.