Math 200 Homework

March 4, 2020

1. Let \( f(x) = x^3 - 12x + 5 \)
   
   (a) Determine the critical numbers of \( f(x) \).
   (b) Determine the sign chart for \( f'(x) \).
   (c) Determine the open intervals where the graph of \( f(x) \) is increasing or decreasing.
   (d) Determine the critical points of the graph of \( f(x) \).
   (e) Sketch the graph of \( f(x) \).
   (f) Determine the relative maximum value of \( f(x) \), and find relative minimum value of \( f(x) \).
   (g) Solve \( f''(x) = 0 \).
   (h) Determine the sign chart for \( f''(x) \).

2. Let \( f(x) = x^3 + 6x^2 - 15x + 10 \)
   
   (a) Determine the critical numbers of \( f(x) \).
   (b) Determine the sign chart for \( f'(x) \).
   (c) Determine the open intervals where the graph of \( f(x) \) is increasing or decreasing.
   (d) Determine the critical points of the graph of \( f(x) \).
   (e) Sketch the graph of \( f(x) \).
   (f) Determine the relative maximum value of \( f(x) \), and find relative minimum value of \( f(x) \).
   (g) Solve \( f''(x) = 0 \).
   (h) Determine the sign chart for \( f''(x) \).