MTH 132 - Quiz 4

Due 16 June at the beginning of class

Name:

Show all your work to receive full credit on the following problems.

1. (5 points) Use Newton's method to approximate $\sqrt[3]{5}$ to at least 5 decimal places, by finding the root of the function $f(x) = x^3 - 5$.

2. (15 points) Consider the function

$$f(x) = \frac{x^2 - 4}{x^2 + 4}$$

   (a) Find the first and second derivatives of f.

   (b) Find all critical points of f, and classify them as local maximums, local minimums, or neither. State what test you used.

   (c) Find the interval(s) on which f is increasing and decreasing.

   (d) Find the interval(s) on which f is concave up and concave down.

   (e) Find all asymptotes of f, and the x- and y-intercepts.

   (f) Draw a careful plot of f using the previous parts.