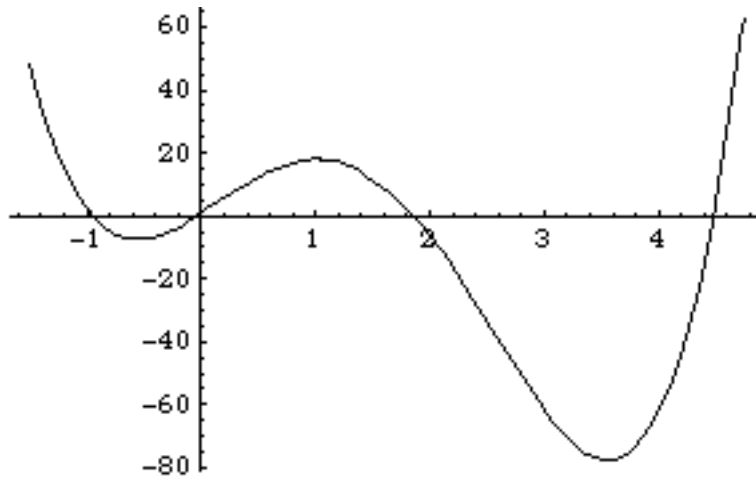


MATH 118 PROJECT #2
Due Monday, November 5.

Work in groups of three to five people. Turn in a report of your results (with complete sentences, please, and graphs and figures as appropriate) in class on Monday, November 5 – one report per group, pledged by all of the group members. Think of a classmate who hasn't thought about these questions as the target audience for your report. *You may not discuss your work with members of any other group.*

1. A portion of the graph of the polynomial $3x^4 - 16x^3 + 6x^2 + 24x + 1$ is given below. It looks like it's got a root slightly smaller than 2. Using Newton's method, try to find that root, starting with initial guess $x_0 = 1.1$. Explain what happens. Now try $x_0 = 1.2$. What happens? What can happen with different initial guesses between 0 and 1?



2. Use Newton's method to try to find a root of the function $f(x) = \sqrt[3]{x}$, using $x_0 = 1$ as your initial guess. Explain what happens (a picture may be helpful). What happens if you try a different initial guess?
3. A portion of the graph of the polynomial $x^3 - 10x^2 + 22x + 6$ is shown below. Using Newton's method, try to find the root near $x = 4$, using $x_0 = 2$ as your initial guess. What happens? What happens if you take $x_0 = 5$?

