

Problem Set 4 Calculus 1 Due 11/13/18

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 3 points for correct and clearly justified answers.

1. Use Newton's Method with the function $f(x) = x^2 - 2$ and initial value $x_0 = 2$ to calculate x_1, x_2, x_3 .
2. Use Newton's method to find the second and third approximation of a root of $x^3 + x + 3 = 0$ starting with $x_0 = -1$ as the initial approximation.
3. Use Newton's method to calculate x_1, x_2, x_3 for $\sqrt[3]{13}$ with $x_0 = 2$ as the initial approximation.
4. [WW] Use Newton's Method on the equation $f(x) = x(x-1)(x+1) = x^3 - x = 0$ with initial approximation $x_0 = \frac{1}{\sqrt{3}}$. Explain what's going on well.
5. [WW] Use Newton's Method on the equation $f(x) = x(x-1)(x+1) = x^3 - x = 0$ with initial approximation $x_0 = \frac{\sqrt{5}}{5}$. Find x_1, x_2, x_3 , and x_4 . Explain what's going on well.

