

Problem: Using Newton's Method determine the root of $f(x) = x^3 - 4x - 1 = 0$, that lies between 2 & 3. (Round to six decimal places)

Newton's Method:
$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

a) Let's make an initial guess of $x_1 = 2.5$. Store 2.5 as x. [2.5 : sto ▸ : x-var : enter]

b) Store Newton's Method, using nder from the Calculus menu, as x:

[x - y1/nder(y1,x,x) : sto ▸ : x-var : enter]

This gives a second approximation of: $x_2 = 2.186441$.

c) Press enter again for the third approximation: $x_3 = 2.118118$.

d) Press enter again for the fourth approximation: $x_4 = 2.114914$.

e) Press enter for the fifth approximation: $x_5 = 2.114908$.

f) Press enter for the sixth approximation: $x_6 = 2.114908$.

And so we are finished!!