

Newton's Method on Ti-84

Adapted from work from Darius.

1. Press [Y=] and on the Y_1 line write the function f .
2. On the Y_2 line write the derivative of f .
3. Return to the main screen by using [2nd] and [QUIT]
4. Let a be your first guess used in the algorithm. Press [a] [STO][X] [ENTER].
For example, if your first guess is 3, press [3][STO][X].
Remember that the algorithm is very robust, so many first guesses should work.
5. Now we will program the iterative step: $x_n - f(x_n)/f'(x_n) = x_{n+1}$.
 - (a) Enter [X] and [-].
 - (b) Press [VARS], select [Y-VARS], press [1] to select "Function...", and then press [1] to select " Y_1 ".
You should be returned to the main screen and have a Y_1 entered.
 - (c) Enter [\div].
 - (d) Now press [VARS], select [Y-VARS], press [1] to select "Function...", and then press [2] to select " Y_2 ".
You should be returned to the main screen and have $X - Y1/Y2$.
 - (e) Now press [STO] and [X].
You should see $X - Y1/Y2 \rightarrow X$ on your screen.
6. Press [ENTER] to get the second approximation. Press [ENTER] again to get the third approximation. In general, press [ENTER] $(n - 1)$ times to get the n^{th} approximation.