

Programming the Casio fx-9750/9860 NM

Note Title

2014-08-09

Here is a quick little program that makes doing Newton's Method painless.

Recall that Newton's Method requires the function, its derivative, and a starting value.

$$X_{n+1} = X_n - \frac{f(x_n)}{f'(x_n)}$$

We put $f(x)$ into y_1 ,
 We put $f'(x)$ into y_2 .
 We put x_1 into A . Then we use NM to iterate as many times as required

```
0 =====NM=====
1 A-Y1(A)÷Y2(A)→A←
```

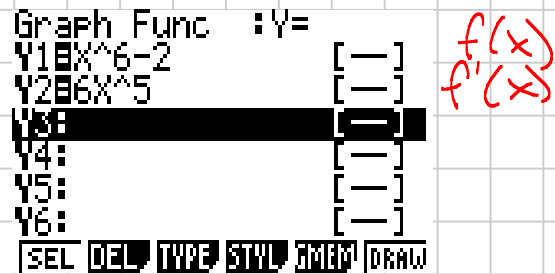
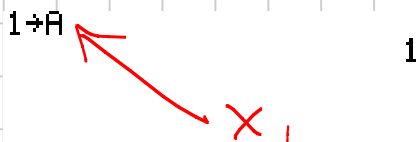


TOP BTM SRC MENU A↔ CHAR

eg) Find $\sqrt[6]{2}$ using Newton's Method to 3 decimals.

So $f(x) = x^6 - 2$ & $f'(x) = 6x^5$

$$X_{n+1} = X_n - \frac{X_n^6 - 2}{6X_n^5}$$



MMAT

```
1.166666667
1.126443678
1.122497067
1.122462051
1.122462048
1.122462048
```

We can see that it doesn't take many iterations before it converges to the result.