

Newton's Method for Approx 81 Zeroes.

- ① Guess a first approximation to a solution of the eq $f(x)=0$.
- ② Use the first approximation to get a second one, the 2nd to get a 3rd ... using:

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

ex] Use Newton's Method to solve:
 $x^3 + 3x + 1 = 0$.

$$f'(x) = 3x^2 + 3 \quad x_1 = -.5$$

- ① Type $-.5$ into calculator + press enter
- ② Ans - $\frac{\text{ans}^3 + 3\text{ans} + 1}{3\text{ans}^2 + 3}$ enter
- ③ enter until the answers in a row are ~~the~~ within the same for 5 or 6 decimal places.

$$x = \underline{\underline{-0.3221853546}}$$