Newton-Raphson Example
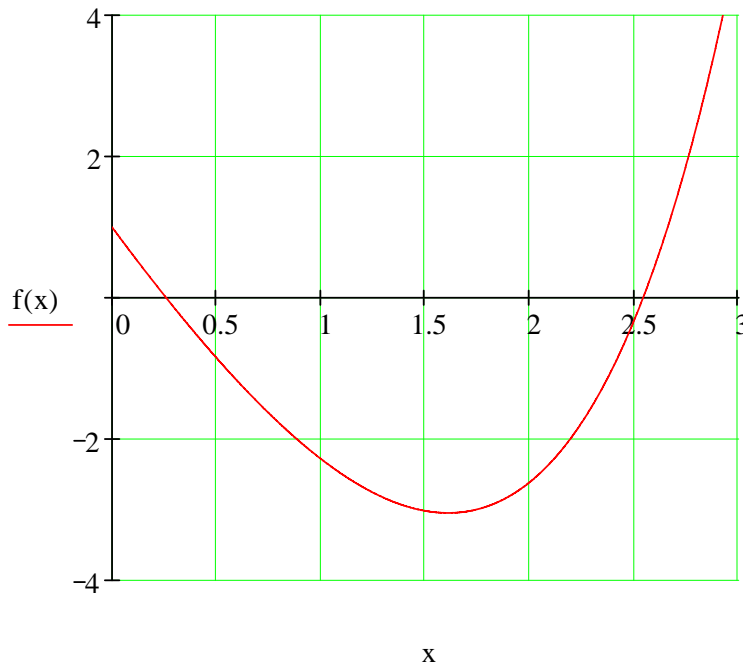
Use Mathcad to find approximate roots of a function f(x) = exp(x) - 5x = 0

.
Start off by defining the function f(x).

$f(x) := \exp(x) - 5x$

Then plot the function to learn how many roots there are and estimate their values

type f(x)@x to get
started with the
graph

x

There are two roots. The first one is about at x=0.3, so we will use that for our first guess.

$x := 0.3$ First tell the algorithm your guess.

$\text{root}(f(x), x) = 0.2592$ And then let Mathcad do the rest.

There is a second root at about at x=2.5, so we will use that for our next guess.

$x := 2.5$

$\text{root}(f(x), x) = 2.5426$ The value of the second root.