

Report on the Natural logarithm

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The purpose of this exercise is to implement a function that can calculate the natural logarithm t of a real positive number x , where $t = \ln(x)$, by solving the equation

$$e^t = x. \quad (1)$$

This was done by using the GSL multiroot solver routine, done by solving the equation

$$\exp(\text{gsl_vector_get}(t, 0)) - x = 0. \quad (2)$$

The result of the exercise can be seen in figure 1.

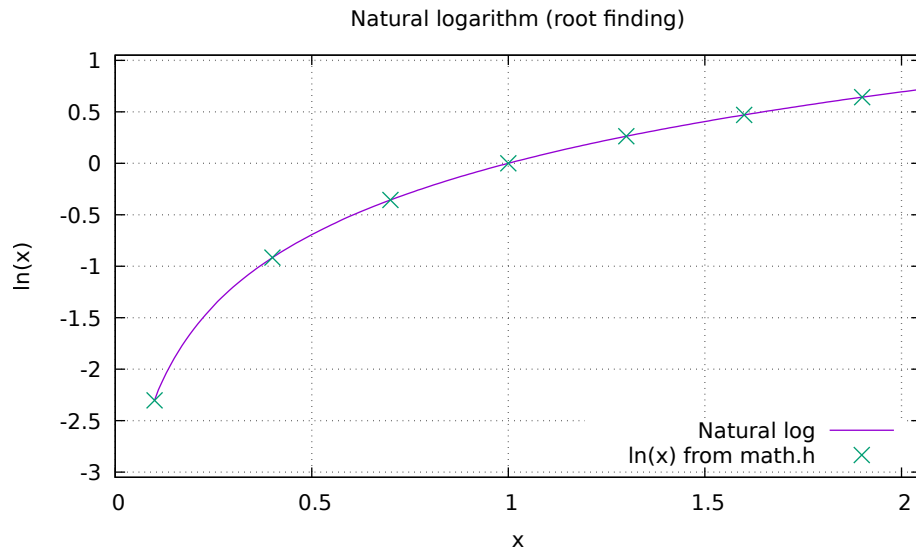


Figure 1: In the plot one see the natural log found in the exercise as the purple line, while the natural log from math.h is plotted as the crosses.