
Assignment/Problem Set 14

Heinrich Dinkel

ID: 1140339107

E-mail: `heinrich.dinkel@sjtu.edu.cn`

1 Exercise 6

The secant method can be expressed as:

$$x_n = x_{n-1} - f(x_{n-1}) \frac{x_{n-1} - x_{n-2}}{f(x_{n-1}) - f(x_{n-2})}$$

In this exercise we have $f(x) = x^2 - 2$, $x_0 = 0$, $x_1 = 1$. We plug in the numbers:

$$\begin{aligned} x_2 &= x_1 - f(x_1) \frac{x_1 - x_0}{f(x_1) - f(x_0)} \\ x_2 &= 1 - (-1) \frac{1}{1} = 2 \end{aligned}$$

So finally, we have $x_2 = 2$.