

Mathematica for physicists - Exercise 4

Due to 15/05/2019

Exercise 1

Use the *Fourier*[] function with *FourierParameters* $\rightarrow \{1, -1\}$ to Fourier transform a discrete Gaussian function. Use the functions *RotateLeft*[] and *RotateRight*[] in the right way.

Exercise 2

Solve the following set of differential equations via the Laplace Transform:

$$\begin{aligned}\frac{\partial}{\partial t}x[t] + \frac{\partial}{\partial t}y[t] &= t \\ 4x[t] + \frac{\partial}{\partial t}y[t] &= 0\end{aligned}\tag{1}$$