Question 1. Find the Fourier series of

\[ f(x) = \begin{cases} 
0 & -\pi < x < 0 \\
\exp(x) & 0 \leq x < \pi.
\end{cases} \]
Question 2. Find the eigenvalues and the eigenfunctions of the Sturm-Liouville problem

\[ y'' - 4y' + \lambda y = 0 \quad y(0) = 0 \quad y(1) = 0. \]