# AMATH 403/503 Homework Assignment #3 Spring 2019

Assigned: Monday, April 22, 2019

Due: Monday, April 29, 2019

1. (a) Represent 

(b) Show that the complex Fourier series can be rearranged into a cosine series.

(c) Take the derivative of that cosine series. What function does the resulting series represent?

2. Use Fourier transforms to solve the following three-dimensional heat equation for *t>0*: 

where *D* is a positive constant, subject to the boundary condition that the solution vanishes at infinities. The initial condition is

