# Fourier Analysis

## Assignment 5

20181025

Name : _____

Student ID : _____

1. Find the Fourier integral representation of the given function.

   (a) $f(x) = \begin{cases} 1, & \text{if } -a < x < a \\ 0, & \text{otherwise} \end{cases}$

   (b) $f(x) = \begin{cases} 1, & \text{if } 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$

2. Find the Fourier transform of the given function.

   (a) $f(x) = \begin{cases} -1, & \text{if } -1 < x < 0 \\ 1, & \text{if } 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$

   (b) $f(x) = \begin{cases} \sin x, & \text{if } |x| \leq \pi \\ 0, & \text{otherwise} \end{cases}$

Reading Materials : Section 7.1, 7.2 of the textbook.