Math 6B
Quiz 8

# Quiz–Fourier Transform

(a) What is the Fourier transform of the function $f$ defined by

$$f(x) = \begin{cases} 1, & -1 \le x \le 1, \\ 0, & \text{else} \end{cases}$$

(b) What is the Fourier transform of the function $g$ defined by

$$g(x) = \begin{cases} x, & -1 \le x \le 1, \\ 0 & \text{else} \end{cases}$$

[Hint: you can use your previous answer and an identity to avoid a second integration.]

Show all work and clearly mark your final answer. No calculators/notes allowed. Partial credit will be given for correctly explaining any steps you're unable to carry out, as well as demonstrating correct methods with computational errors.