

# MTH 352/652: Homework #9

Due Date: April 19, 2024

## 1 Problems for Everyone

1. pg. 273-274, #7.1.1-7.1.4, #7.1.15-7.1.16.
2. Compute  $\mathcal{F}\left[xe^{-ax^2}\right](k)$ , where  $a > 0$  is a constant.
3. Given that

$$\mathcal{F}\left[xe^{-|x|}\right](k) = -\frac{4ik}{(1+k^2)^2},$$

find

$$\mathcal{F}\left[\frac{x}{(1+x^2)^2}\right].$$