

1) Let $f(x) = xe^{-|x|}$ (Example 14.2)

(a) Show that $\int_{-\infty}^{\infty} |f(x)| dx$ converges

(b) Sketch $f(x) = xe^{-|x|}$ and judge whether $f(x)$ is piecewise smooth or not

(c) Write the Fourier integral of $f(x)$ on the real line

2) Section 14.1 Problems 1.

3) Section 14.1 Problems 7.

4) Section 14.2 Problems 1.

5) Section 14.2 Problems 9.

6) Prove Theorem 14.3

7) Prove Theorem 14.5