MATH 464, HW 3

Express the Fourier Transforms of the following functions in terms of the Fourier transform of the function $\mathbb{1}_{[0,1]}$:

$$f_1(x) = \mathbb{1}_{[u,u+1]}$$

$$f_2(x) = \max(1 - |x - 1|, 0)$$

$$f_3(x) = \mathbb{1}_{[0,2]}$$

$$f_4(x) = \mathbb{1}_{[-2,-1]}$$

Hint: You should not compute the Fourier Transforms explicitely. Instead, you should use results like Theorem 1.2.1, Proposition 1.5.2, etc.