

**Extra Exercise for Week 7**  
Math. 412, Fall 2006

Fill in the details on p. 58 of the notes:

- (a) Show that convolution is commutative ( $f_1 * f_2 = f_2 * f_1$ ).
- (b) Prove the convolution theorem (the formula for the inverse Fourier transform of a product of two functions of  $k$ ).