

**Homework 9.5: Convolutions**

1. §3.9, #1.
2. Suppose that  $X$  and  $Y$  are independent random variables with  $f_X(x) = xe^{-x}$ ,  $x \geq 0$ , and  $f_Y(y) = e^{-y}$ ,  $y \geq 0$ . Find the pdf of  $X + Y$ .