

April 2, 2004

Show all work for credit.

1. Suppose X and Y are random variables with joint density function,

$$f(x, y) = \begin{cases} 0.1e^{-(0.5x+0.2y)} & \text{if } x \geq 0, y \geq 0 \\ 0 & \text{otherwise} \end{cases}$$

- (a) Verify that f is a joint density function. That is, show $\iint_{\mathbb{R}^2} f(x, y) dA = 1$
- (b) Find $P(X \leq 2, Y \leq 4)$