

3. Let X and Y be jointly continuous RVs with pdf given by $f(x,y) = 2e^{-(x+y)}$ for $0 < x < y < \infty$, and 0 otherwise.

a. Find the cumulative probability $F(5,3)$.

b. Find $P(X > 3, Y > 6)$.

c. Find $P(Y > 3X)$.

d. Find $P(X + Y \leq 10)$.

e. Find the marginal pdf of Y .