Name: _Abhilasha Managoli_

1. True or False:
   The joint PDF $f_{X,Y}(x,y)$ of two random variables X and Y can never exceed 1.

   TRUE   (FALSE)

2. Suppose that $f_{X,Y}(x,y)$ is the joint PDF of two random variables X and Y, and the sample space is:
$$0 \le X \le 5, \qquad 0 \le Y \le 5$$
   Match the integral with what it gives:

   $\int_0^5 f_{X,Y}(x,y)\, dy$ $P[X < 2, Y > 4]$

   $\int_0^5 f_{X,Y}(x,y)\, dx$ $P[X > 2, Y < 4]$

   $\int_0^2 \int_4^5 f_{X,Y}(x,y)\, dy\, dx$ $P[X + Y > 7]$

   $\int_0^2 \int_0^5 f_{X,Y}(x,y)\, dy\, dx$ $P[X > Y]$

   $\int_0^5 \int_0^x f_{X,Y}(x,y)\, dy\, dx$ $f_X(x)$

   $\int_2^5 \int_{7-x}^5 f_{X,Y}(x,y)\, dy\, dx$ $f_Y(y)$

   $\int_0^4 \int_2^5 f_{X,Y}(x,y)\, dx\, dy$ 1