MATH 302 WORKSHEET IV SPRING 2010 NAME:_____
(PLEASE PRINT LEGIBLY)

1. Let $X, Y \sim w((x,y))$ such that $w((x,y)) = \begin{cases} \frac{3}{2}x^2(1-|y|) & -1 \le x \le 1, \quad -1 \le y \le 1 \\ 0 & \text{else} \end{cases}$

A. Find μ_X B. Find μ_Y C. Find σ_X^2

D. Find σ_{XX} E. Find σ_{XY}

2. Let $X, Y \sim p((x,y))$ be defined such that

$$p((x,y)) = \begin{cases} \frac{n!}{x!y!(n-x-y)!} \cdot p_1^x \cdot p_2^y \cdot (1-p_1-p_2)^{n-x-y} & x \in \mathbb{N}^* \quad y \in \mathbb{N}^* \quad x+y \le n \\ 0 & \text{else} \end{cases}$$

Let $p_1 = \frac{1}{5}$, $p_2 = \frac{2}{5}$, and $n = 5$

A. Find μ_X B. Find μ_Y C. Find σ_X^2

D. Find σ_{XX} E. Find σ_{XY}

3. Let $X, Y \sim m((x,y))$ be defined such that

$$m((x,y)) = \begin{cases} \frac{x+y}{32} & x \in \mathbb{N}_2, \quad y \in \mathbb{N}_4 \\ 0 & \text{else} \end{cases}$$

A. Find μ_X B. Find μ_Y C. Find σ_X^2

D. Find σ_{XX} E. Find σ_{XY}

4. Let $X, Y \sim g((x,y))$ be defined such that

$$g((x,y)) = \begin{cases} \frac{1}{16} e^{-\left(\frac{x}{2}+\frac{y}{8}\right)} & x \in [0,\infty) \quad y \in [0,\infty) \\ 0 & \text{else} \end{cases}$$

A. Find μ_X B. Find μ_Y C. Find σ_X^2

D. Find σ_{XX} E. Find σ_{XY}

5. Let X, Y be jointly distributed such that the joint probability mass function, $k_{xy}((x, y))$ is defined as:

$$k_{xy}((x, y)) = \begin{cases} \frac{x+y}{21} & x \in \mathbb{N}_3 \quad y \in \mathbb{N}_2 \\ 0 & \text{else} \end{cases}$$

A. Find μ_X B. Find μ_Y C. Find σ_X^2

D. Find σ_{XX} E. Find σ_{XY}