

Name:

MATH 321: In-Class 16

1. Let $f(x, y) = \frac{xy^2}{12}$, $0 \leq x \leq 3, 0 \leq y \leq 2$.

(a) Show if X and Y are independent or dependent using the definition.

(b) Using your results from part (a), write the integrals to find $P(X > 2, Y < 1.5)$ and $E(Y^3\sqrt{X})$ (don't actually solve, just set up).

2. Let $f(x, y) = \frac{x+2y}{18}$ for $x = 1, 2$ and $y = 1, 2$ be the joint pmf for the random vector (X, Y) .

(a) Show if X and Y are independent or dependent by inspection.

(b) Using your calculator, find all of the following items:

$E(X)$, $E(Y)$, $SD(X)$, $SD(Y)$ and $E(XY)$.

(c) Using your results from part (c), calculate $\text{Cov}(X, Y)$ using the alternate formula and $\text{Corr}(X, Y)$.