

chapter 5 practice problem

- (a) (2 points) Let X, Y have a joint probability mass function as follows. Fill in the value missing in the table.

	$Y=0$	$Y=1$	$Y=2$
$X=0$	0.3	0.1	0.1
$X=1$		0.4	0

- (b) (2 points) Using the missing value in the table, calculate $E[Y]$.
(If you can't find the answer in (a), use a "missing value" of 0 in your calculation.)

- (c) (1 point) Which of the following best describes the relationship between X and Y in (a)?
Circle the correct answer.

(i) Independent (b) Not independent (c) Not enough information

- (d) (4 points) Let X, Y have a joint probability density function as follows. Compute c so that $f(x, y)$ is a valid pdf.

$$f_{X,Y}(x, y) = \begin{cases} c \cdot (x^2 + y^2) & 0 \leq x \leq 1, 0 \leq y \leq 1 \\ 0 & \text{otherwise} \end{cases}$$

- (e) (1 point) Which of the following best describes the relationship between X and Y in (d)?
Circle the correct answer.

(i) Independent (b) Not independent (c) Not enough information