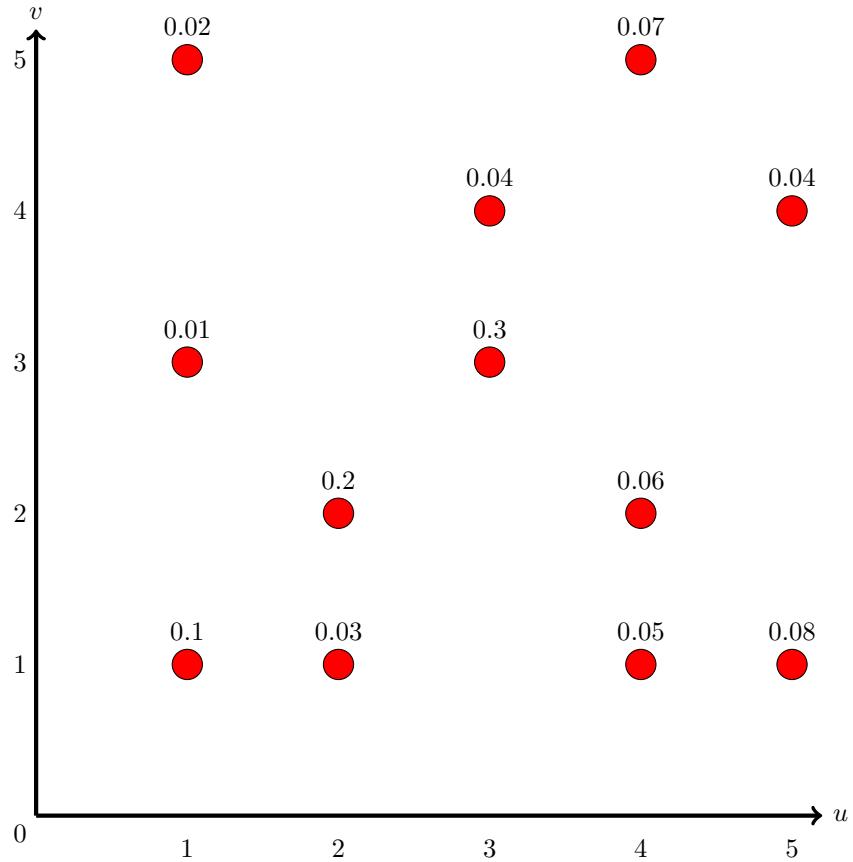
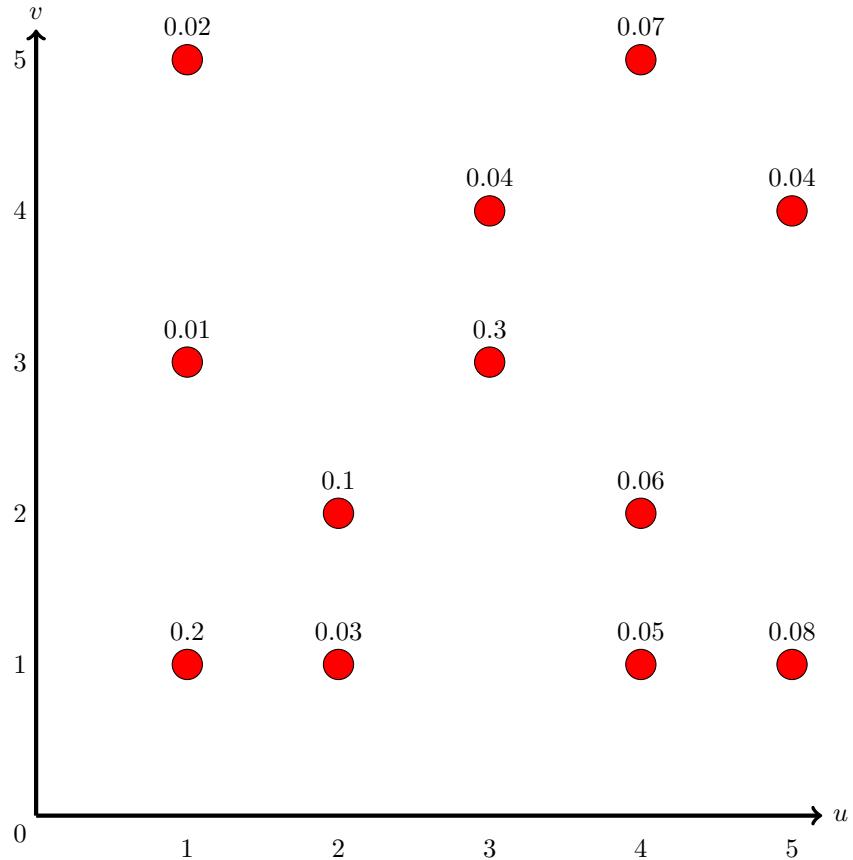


Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X + Y$ is less than π ?



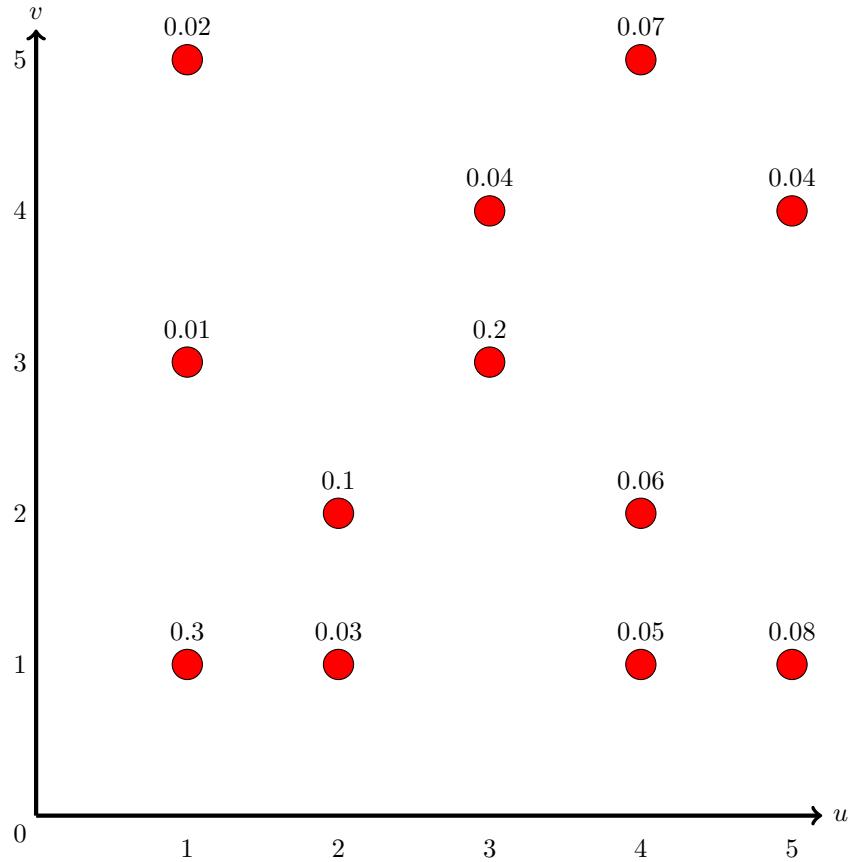
- (a) 0.13
- (b) 0.33
- (c) 0.34
- (d) 0.64
- (e) 0.11
- (f) 0.1
- (g) 0.03
- (h) 0
- (i) 1
- (j) None of these

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X + Y$ is less than π ?



- (a) 0.23
- (b) 0.33
- (c) 0.34
- (d) 0.64
- (e) 0.21
- (f) 0.2
- (g) 0.03
- (h) 0
- (i) 1
- (j) None of these

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X + Y$ is less than π ?

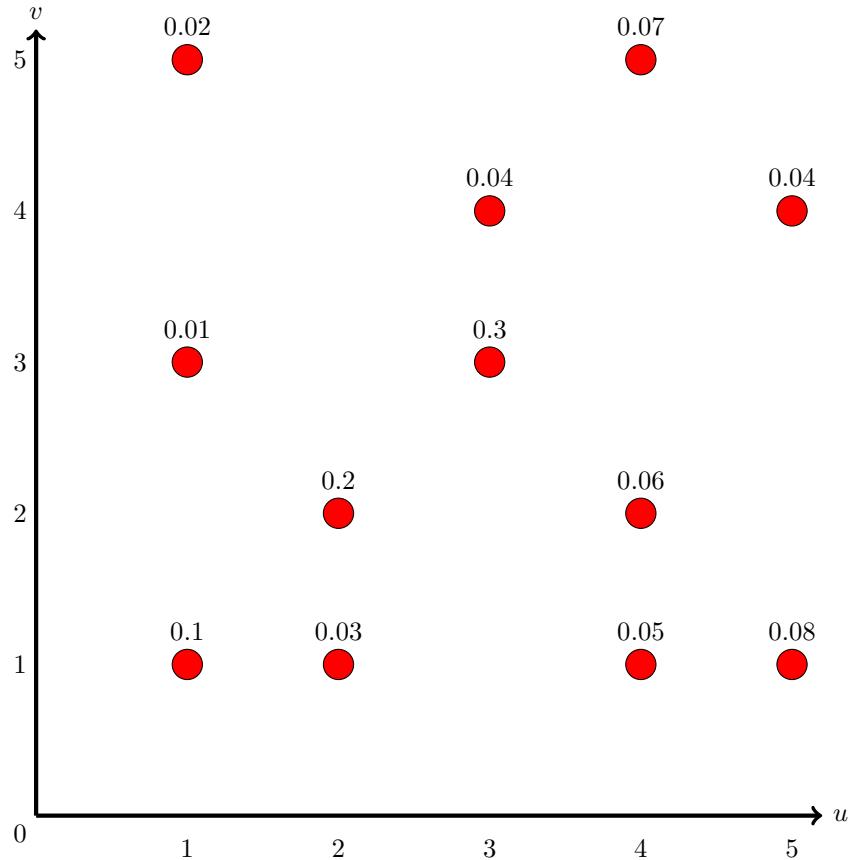


- (a) 0.33
- (b) 0.43
- (c) 0.44
- (d) 0.64
- (e) 0.31
- (f) 0.3
- (g) 0.03
- (h) 0
- (i) 1
- (j) None of these

Solution:

$$P(X + Y < \pi) = p_{X,Y}(1, 1) + p_{X,Y}(2, 1).$$

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that X is greater than 2, given that Y is greater than 4 ?

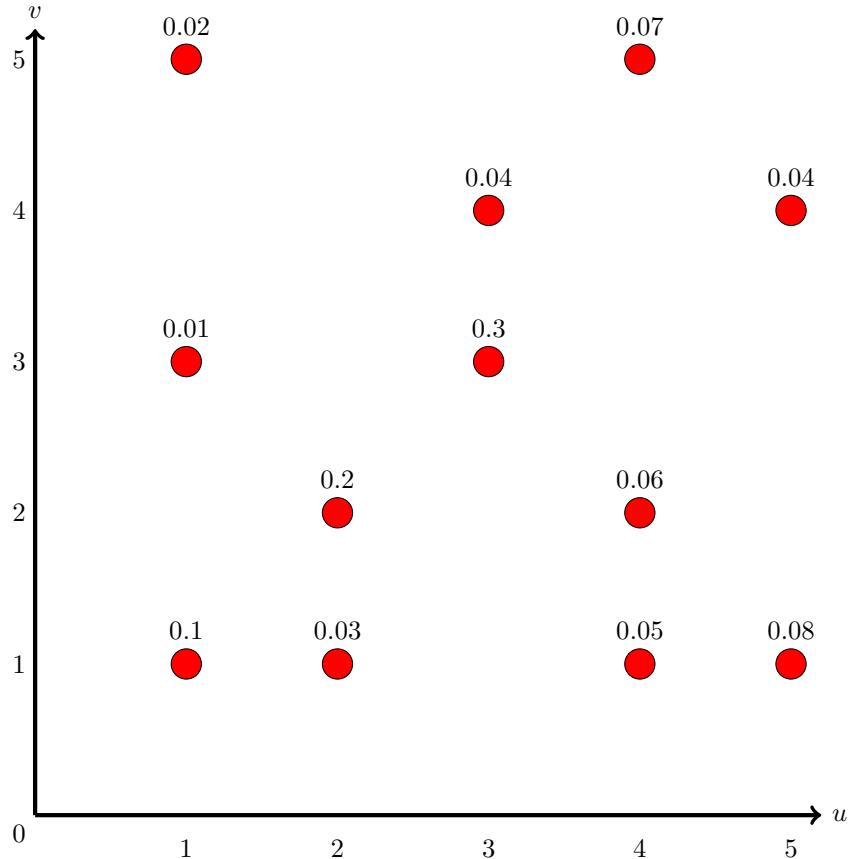


- (a) $7/9$
- (b) 0.07
- (c) 0.09
- (d) 0.13
- (e) $2/9$
- (f) 0.64
- (g) 0.11
- (h) 0
- (i) 1
- (j) None of these

Solution:

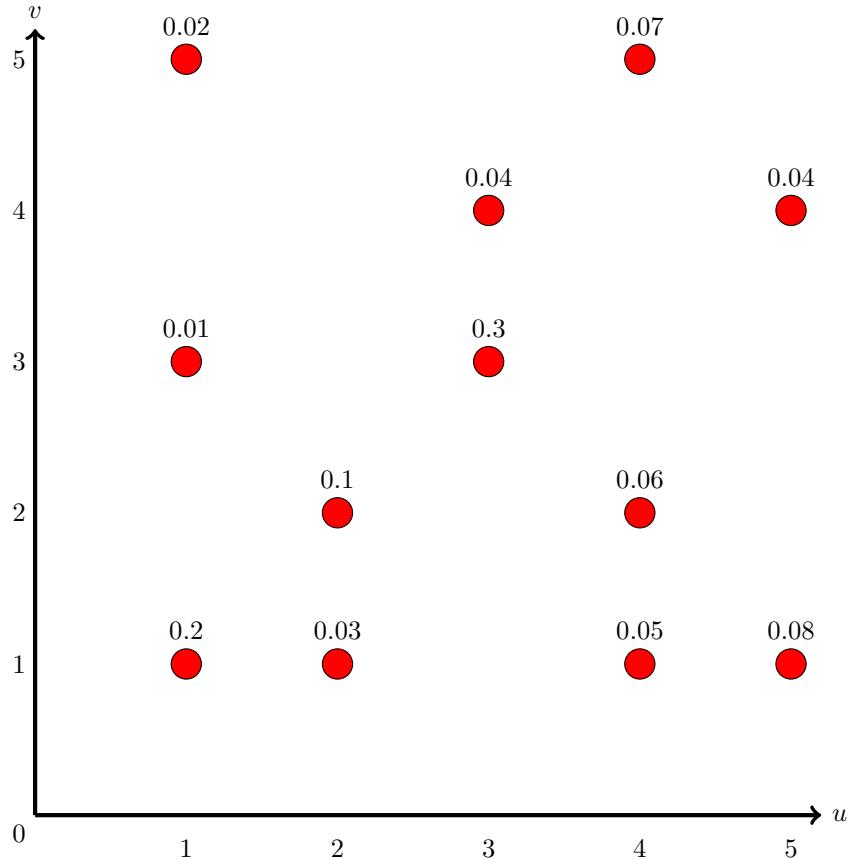
$$P(X > 2 | Y > 4) = \frac{P(X > 2, Y > 4)}{P(Y > 4)} = \frac{p_{X,Y}(4,5)}{p_{X,Y}(1,5) + p_{X,Y}(4,5)} = \frac{0.07}{0.07 + 0.02} = \frac{7}{9}.$$

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X^2 + Y^2$ is greater than $9/2$?



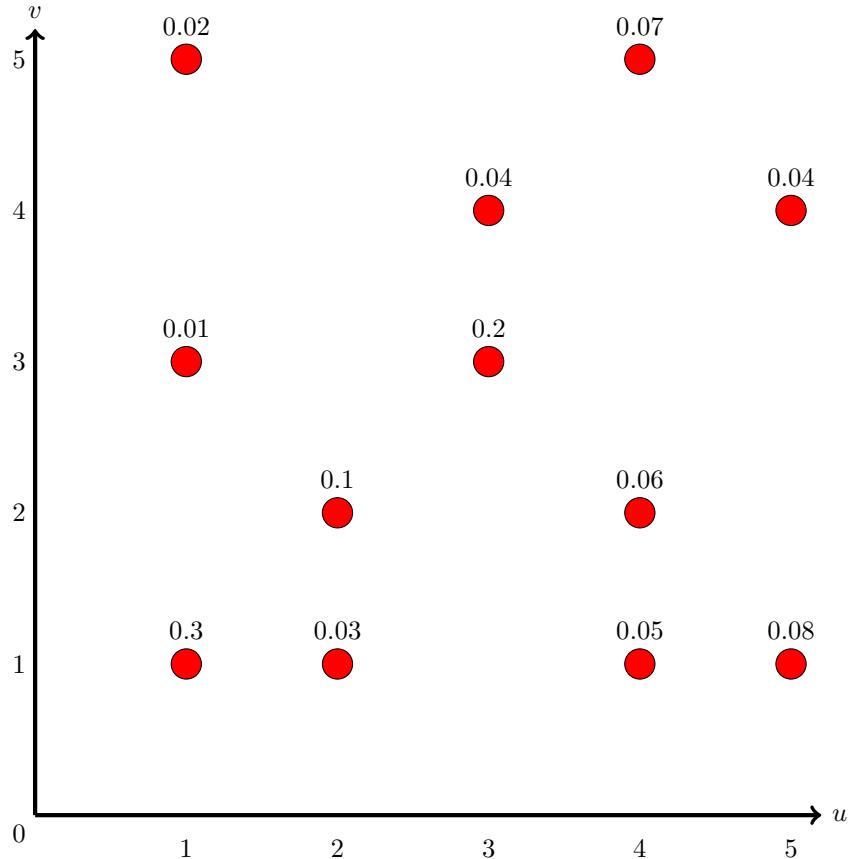
- (a) 0.9
- (b) 0.1
- (c) 0.13
- (d) 0.87
- (e) 0.33
- (f) 0.67
- (g) 0.21
- (h) 0.79
- (i) 0
- (j) 1
- (k) None of these

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X^2 + Y^2$ is greater than $9/2$?



- (a) 0.8
- (b) 0.2
- (c) 0.23
- (d) 0.77
- (e) 0.33
- (f) 0.67
- (g) 0.21
- (h) 0.79
- (i) 0
- (j) 1
- (k) None of these

Suppose the joint probability mass function $p_{X,Y}(u,v)$ of random variables X and Y is shown below. What is the probability that $X^2 + Y^2$ is greater than $9/2$?



- (a) 0.7
- (b) 0.3
- (c) 0.33
- (d) 0.67
- (e) 0.43
- (f) 0.57
- (g) 0.21
- (h) 0.79
- (i) 0
- (j) 1
- (k) None of these

Solution:

$$P(X^2 + Y^2 > 9/2) = 1 - P(X^2 + Y^2 \leq 9/2) = 1 - p_{X,Y}(1, 1)$$