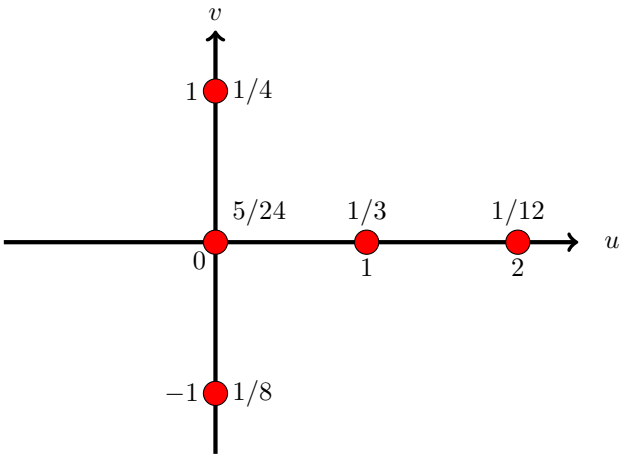
(Note: The same setup is used for all three problems.)
Random variables X and Y have the joint probability mass function shown below. What is the probability that $\max(X, Y)$ is larger than $1/12$?

$p_{X,Y}(u, v)$



(a) 2/3

(b) 7/8

(c) 5/8

(d) 17/24

(e) 11/12

(f) 19/24

(g) 1/3

(h) 1/8

(i) 3/8

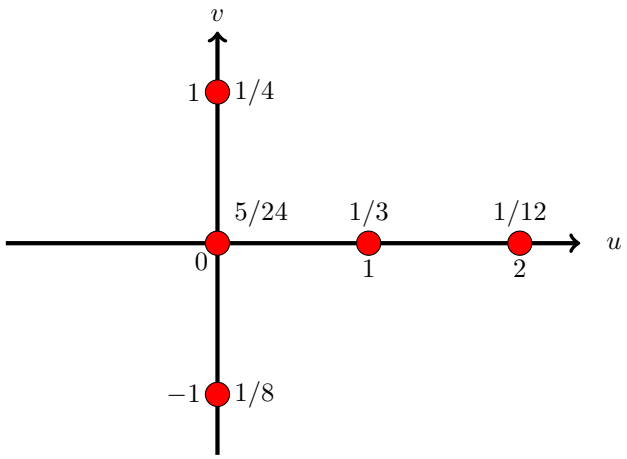
(j) 3/5

(k) 1

(l) None of these

Random variables X and Y have the joint probability mass function shown below. What is the expected value of the cosine of $(X\pi + Y\pi)$?

$p_{X,Y}(u,v)$



(a) $-5/12$

(b) $5/12$

(c) $-5/24$

(d) $5/24$

(e) $-5/6$

(f) $5/6$

(g) $-1/3$

(h) $1/3$

(i) $1/2$

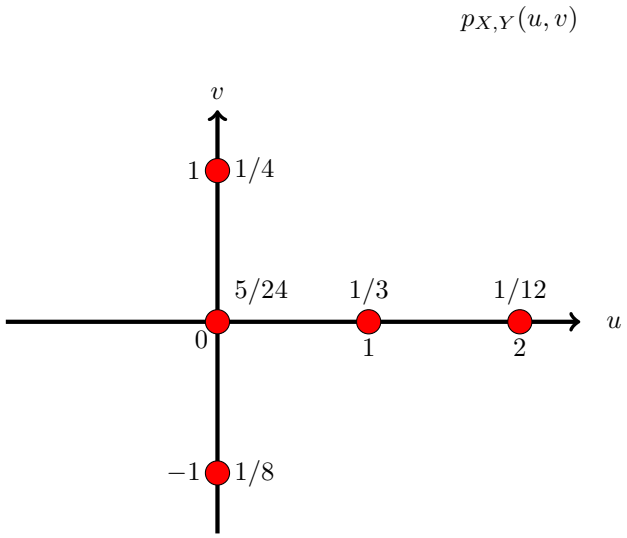
(j) -1

(k) 1

(l) 0

(m) None of these

Random variables X and Y have the joint probability mass function shown below. What is their correlation coefficient?



(a) $-\sqrt{3/115}$

(b) $\sqrt{3/115}$

(c) $-3/115$

(d) $-1/16$

(e) $1/16$

(f) $-1/4$

(g) $1/4$

(h) $-\sqrt{6}/8$

(i) $\sqrt{6}/8$

(j) 1

(k) 0

(l) None of these