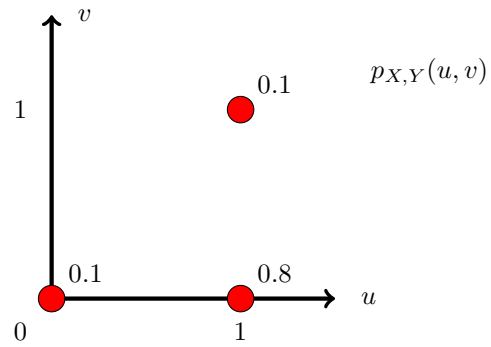
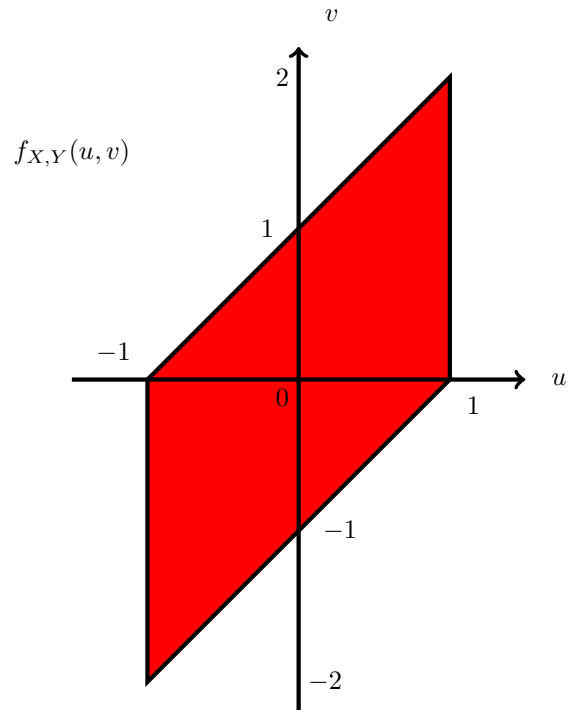


If X and Y have joint probability mass function below, then what is their correlation coefficient?



- (a) $1/9$
- (b) $-1/9$
- (c) $4/5$
- (d) $-4/5$
- (e) $1/10$
- (f) $-1/10$
- (g) $1/2$
- (h) $-1/2$
- (i) $3/8$
- (j) $-3/8$
- (k) None of these

Suppose X and Y are random variables whose joint probability density function is $f_{X,Y}(u, v) = Cu^2$ in the shaded parallelogram shown below and C is a constant. The joint pdf equals zero elsewhere. What is the covariance of X and Y ?



- (a) $4C/5$
- (b) $2C/5$
- (c) $C/5$
- (d) $4/5$
- (e) $4C$
- (f) 0
- (g) None of these

The joint probability density function of X and Y when $u, v > 0$ is $f_{X,Y}(u, v) = Ke^{-12u-18v}$, where K is a constant, and is zero otherwise. If $Z = 4X$ and $W = 3Y$, then which of the following is the joint pdf $f_{Z,W}(u, v)$ of Z and W when $u, v > 0$?

- (a) $18e^{-3u-6v}$
- (b) $\frac{1}{12} \cdot e^{-3u-6v}$
- (c) $216e^{-3u-6v}$
- (d) $12e^{-3u-6v}$
- (e) $18e^{-12u-18v}$
- (f) $\frac{1}{12} \cdot e^{-12u-18v}$
- (g) $18e^{-(u/4)-(v/3)}$
- (h) $18e^{-(u/12)-(v/18)}$
- (i) $18e^{-48u-54v}$
- (j) $216e^{-12u-18v}$
- (k) None of these