

The Infinite Actuary Exam STAM Online Course

A.1.4. Practice Problems on Joint Distributions

1. X and Y are discrete variables whose joint distribution $P[X = x, Y = y] = p(x, y)$ is given by

$$p(1, 1) = 0.12 \quad p(2, 1) = 0.06 \quad p(3, 1) = 0.12$$

$$p(1, 2) = 0.00 \quad p(2, 2) = 0.12 \quad p(3, 2) = 0.08$$

$$p(1, 3) = 0.20 \quad p(2, 3) = 0.05 \quad p(3, 3) = 0.15$$

$$p(1, 4) = 0.05 \quad p(2, 4) = 0.02 \quad p(3, 4) = 0.03$$

Find $P[X > Y]$

A. 0.26

B. 0.30

C. 0.32

D. 0.35

E. 0.39

2. X and Y are discrete variables whose joint distribution $P[X = x, Y = y] = p(x, y)$ is given by

$$p(0, 1) = 0.2 \quad p(1, 1) = 0.1$$

$$p(1, 2) = 0.3 \quad p(2, 2) = 0.1$$

$$p(2, 3) = 0.1 \quad p(3, 3) = 0.2$$

Find the coefficient of variation of Y .

A. 0.30

B. 0.39

C. 0.60

D. 2.58

E. 3.33