

**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

$$\begin{array}{lll} p(1, 1) = 0.12 & p(2, 1) = 0.06 & p(3, 1) = 0.12 \\ p(1, 2) = 0.00 & p(2, 2) = 0.12 & p(3, 2) = 0.08 \\ p(1, 3) = 0.20 & p(2, 3) = 0.05 & p(3, 3) = 0.15 \\ p(1, 4) = 0.05 & p(2, 4) = 0.02 & p(3, 4) = 0.03 \end{array}$$

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