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

$$
\begin{array}{ll}
p(0,1) = 0.2 & p(1,1) = 0.1 \\
p(1,2) = 0.3 & p(2,2) = 0.1 \\
p(2,3) = 0.1 & p(3,3) = 0.2
\end{array}
$$

Find the coefficient of variation of Y.

A. 0.30   B. 0.39   C. 0.60   D. 2.58   E. 3.33