

Discrete Random Variables Exam Questions

Q1, (OCR H230/01, Sample Paper Q9)

The probability distribution of a random variable X is given in the table.

x	1	2	3
$P(X = x)$	0.6	0.3	0.1

Two values of X are chosen at random. Find the probability that the second value is greater than the first.

[3]

Q2, (OCR H240/02, Sample Paper, Q14)

A random variable X has probability distribution given by

$$P(X = x) = \frac{1}{860}(1 + x) \quad \text{for } x = 1, 2, 3, \dots, 40.$$

(i) Find $P(X > 39)$. [2]

(ii) Given that x is even, determine $P(X < 10)$. [6]

Q3, (OCR H230/01, Specimen Paper Set 1, Q10)

Joanne has five cards, numbered 1, 1, 1, 2, 2. She picks two cards at random, without replacement. The variable X denotes the sum of the numbers on the two cards.

(i) Show that $P(X = 3) = \frac{3}{5}$. [2]

The table shows the probability distribution of X .

x	2	3	4
$P(X = x)$	$\frac{3}{10}$	$\frac{3}{5}$	$\frac{1}{10}$

Joanne replaces the two cards. Now Liam picks two cards at random from the five cards, without replacement. The variable Y denotes the sum of the numbers on the two cards that Liam picks.

(ii) Find $P(X = Y)$. [2]