

QQQ – Statistics Year 1 – Chapter 6 – DRV's & Binomial Distribution (Version 1)

Total Marks: 24

(24 = Platinum, 22 = Gold, 19 = Silver, 16 = Bronze)

1. The table below shows the probability distribution for a discrete random variable X .

x	0	1	2	3	4 or more
$P(X = x)$	0.35	0.25	k	0.14	0.1

Find the value of k .

Circle your answer.

[1 mark]

- 0.14
- 0.16
- 0.18
- 1

(Total 1 marks)

AQA June 2018 Paper 2 Q13

2. The random variable $X \sim B(20, 0.37)$

(a) Find $P(X = 8)$ **(1)**

(b) Find $P(X \leq 5)$ **(1)**

(c) Find $P(X \leq 5.7)$ **(1)**

(Total 3 marks)

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3. A probability distribution is given by

$$P(X = x) = c(4 - x), \quad \text{for } x = 0, 1, 2, 3$$

where c is a constant.

(a) Show that $c = \frac{1}{10}$ [2 marks]

(b) Calculate $P(X \geq 1)$ [2 marks]

(Total 4 marks)

AQA June 2019 Paper 2 Q14

4. A mathematical puzzle is published every day in a newspaper.

Over a long period of time Paula is able to solve the puzzle correctly 60% of the time.

(a) For a randomly chosen 14-day period find the probability that:

(i) Paula correctly solves exactly 8 puzzles [1 mark]

(ii) Paula correctly solves at least 7 but not more than 11 puzzles. [2 marks]

(b) State one assumption that is necessary for the distribution used in part (a) to be valid.

[1 mark]

(Total 4 marks)

AQA June 2020 Paper 2 Q16

5. A spinner has sides numbered 1, 2, 3, 4. When the spinner is spun the score is given by the number of the side on which it lands. The spinner is biased, as shown in the table.

Score	1	2	3	4
Probability	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{6}$	$\frac{1}{3}$

In a fairground game, each player has two spins. They win a prize if the total of the scores on the two spins is greater than 5.

Zayn says, "If I play, it's more likely that I'll win a prize than I won't win a prize."

Determine whether Zayn is correct.

[4]

(Total 4 marks)

OCR A June 2025 Paper 1 Q11

6. Julia selects 3 letters at random, one at a time without replacement, from the word

V A R I A N C E

The discrete random variable X represents the number of times she selects a letter A.

(a) Find the complete probability distribution of X . (5)

Yuki selects 10 letters at random, one at a time **with** replacement, from the word

D E V I A T I O N

(b) Find the probability that he selects the letter E at least 4 times. (3)

(Total 8 marks)