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Other names

**Pearson Edexcel**  
**Level 3 GCE**

Centre Number

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Candidate Number

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# Mathematics

**Advanced Subsidiary**

**Paper 2: Statistics and Mechanics**

Wednesday 23 May 2018 – Morning

**Time: 1 hour 15 minutes**

Paper Reference

**8MA0/02**

**You must have:**

Mathematical Formulae and Statistical Tables, calculator

Total Marks

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**Candidates may use any calculator allowed by the regulations of the Joint Council for Qualifications. Calculators must not have the facility for symbolic algebra manipulation, differentiation and integration, or have retrievable mathematical formulae stored in them.**

## Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- There are **two** sections in this question paper. Answer **all** the questions in Section A and **all** the questions in Section B.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- You should show sufficient working to make your methods clear. Answers without working may not gain full credit.
- Answers should be given to three significant figures unless otherwise stated.

## Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 9 questions in this question paper. The total mark for this paper is 60.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**Question 3 continued**

Lined writing area for the answer.

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Question 3 continued

Lined writing area for the answer to Question 3.

(Total for Question 3 is 7 marks)

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4. Helen is studying the daily mean wind speed for Camborne using the large data set from 1987. The data for one month are summarised in Table 1 below.

<b>Windspeed</b>	n/a	6	7	8	9	11	12	13	14	16
<b>Frequency</b>	13	2	3	2	2	3	1	2	1	2

**Table 1**

- (a) Calculate the mean for these data. (1)
- (b) Calculate the standard deviation for these data and state the units. (2)

The means and standard deviations of the daily mean wind speed for the other months from the large data set for Camborne in 1987 are given in Table 2 below. The data are not in month order.

<b>Month</b>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
<b>Mean</b>	7.58	8.26	8.57	8.57	11.57
<b>Standard Deviation</b>	2.93	3.89	3.46	3.87	4.64

**Table 2**

- (c) Using your knowledge of the large data set, suggest, giving a reason, which month had a mean of 11.57 (2)

The data for these months are summarised in the box plots on the opposite page. They are not in month order or the same order as in Table 2.

- (d) (i) State the meaning of the \* symbol on some of the box plots.
- (ii) Suggest, giving your reasons, which of the months in Table 2 is most likely to be summarised in the box plot marked *Y*. (3)

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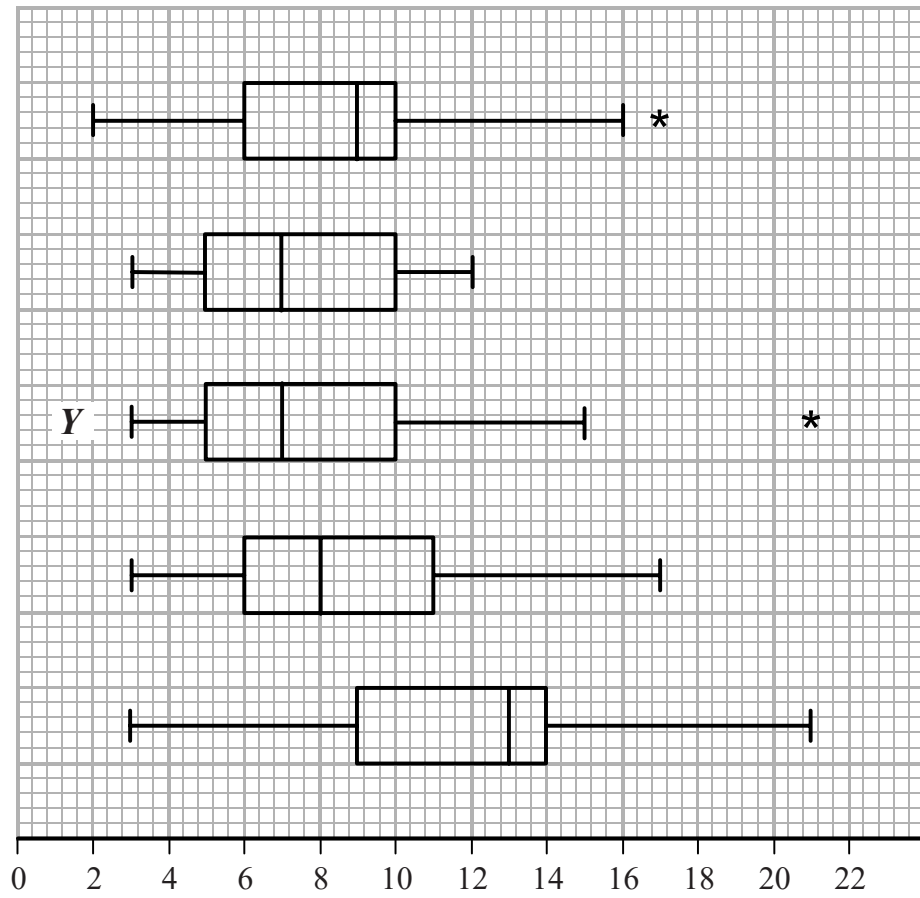
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Question 4 continued



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(Total for Question 4 is 8 marks)



P 5 8 3 4 7 A 0 1 1 2 8

5. A biased spinner can only land on one of the numbers 1, 2, 3 or 4. The random variable  $X$  represents the number that the spinner lands on after a single spin and  $P(X = r) = P(X = r + 2)$  for  $r = 1, 2$

Given that  $P(X = 2) = 0.35$

- (a) find the complete probability distribution of  $X$ .

(2)

Ambroh spins the spinner 60 times.

- (b) Find the probability that more than half of the spins land on the number 4  
Give your answer to 3 significant figures.

(3)

The random variable  $Y = \frac{12}{X}$

- (c) Find  $P(Y - X \leq 4)$

(3)

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Question 5 continued

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(Total for Question 5 is 8 marks)

**TOTAL FOR SECTION A IS 30 MARKS**



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