Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Wednesday 14 January 2026

Morning (Time: 1 hour 30 minutes)

Paper reference **WST01/01**

▲ △

Mathematics

International Advanced Subsidiary/Advanced Level
Statistics S1

You must have:
Mathematical Formulae and Statistical Tables (Yellow), calculator

Total Marks

Candidates may use any calculator permitted by Pearson regulations. 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.
- Answer **all** questions and ensure that your answers to parts of questions are clearly labelled.
- 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.
- Values from the statistical tables should be quoted in full. If a calculator is used instead of the tables, the value should be given to an equivalent degree of accuracy.
- Inexact answers should be given to three significant figures unless otherwise stated.

Information

- A booklet 'Mathematical Formulae and Statistical Tables' is provided.
- There are 7 questions in this question paper. The total mark for this paper is 75.
- 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.
- If you change your mind about an answer, cross it out and put your new answer and any working underneath.

Turn over ▶

P78914A

©2026 Pearson Education Ltd.
C:1/1/1/1/1/

P 7 8 9 1 4 A 0 1 2 4

Pearson

1. The marks of a group of 31 students in a Statistics test are summarised by the stem and leaf diagram below.

Mark		Totals
1	8	(1)
2	6	(1)
3	2 4 7	(3)
4	0 6 6 7 8 9	(6)
5	0 0 1 2 3 5 6 7 9	(9)
6	2 2 3 3 5 8	(6)
7	2 4 8	(3)
8	5	(1)
9	0	(1)

Key: 2 | 6 represents 26 marks

(a) Find the median and the interquartile range of the marks of these students.

(3)

An outlier is defined as a mark that is

either more than 1.5 × interquartile range above the upper quartile

or more than 1.5 × interquartile range below the lower quartile

(b) On the grid provided on page 3, draw a box plot to represent the marks of the students, indicating clearly any outliers.

(5)

Three students asked for their marks to be checked.

- The mark for student A was changed from 47 to 43
- The mark for student B was changed from 49 to 43
- The mark for student C was changed from 90 to 94

(c) Explain the effects that these three changes would have on the box plot drawn in part (b).

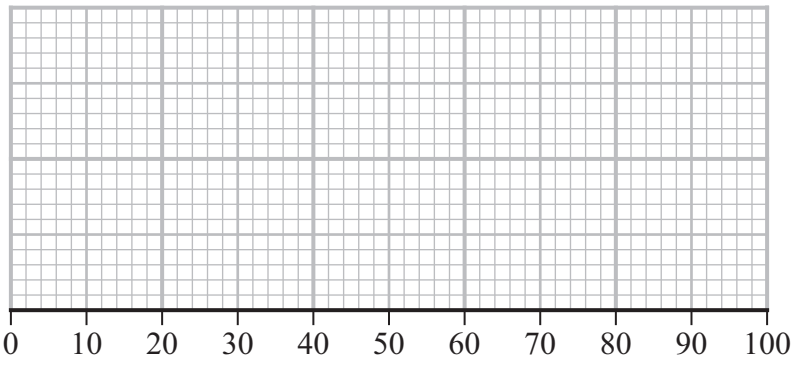
- Show your calculations clearly
- You do **not** need to draw the new box plot

(4)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 1 continued



Turn over for a spare grid if you need to redraw your box plot.

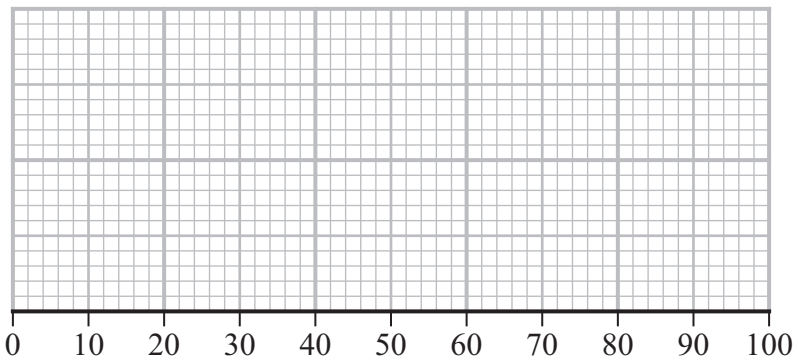
Question 1 continued

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 1 continued

Only use this grid if you need to redraw your box plot.



(Total for Question 1 is 12 marks)

2. A biologist is studying the noises made by dolphins. The biologist records the frequency, f kHz, of the noise made by a dolphin at 10 different sea depths, d m.

Some summary statistics are given below.

$$\bar{d} = 25.7 \quad \sum f = 15 \quad \sum f^2 = 25.5 \quad \sum df = 433.5 \quad S_{dd} = 1090.6$$

(a) Find the value of S_{ff} and the value of S_{df}

(3)

(b) State, giving a reason, which is the response variable.

(1)

(c) Calculate the value of the product moment correlation coefficient for these data.

(2)

(d) Give an interpretation of your answer to part (c)

(1)

(e) Find the equation of the least squares regression line of f on d, giving your answer in the form $f = \alpha + \beta d$

(3)

(f) Give an interpretation of

(i) the gradient of your regression line,

(ii) the f intercept of your regression line.

(2)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 2 continued

Question 2 continued

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

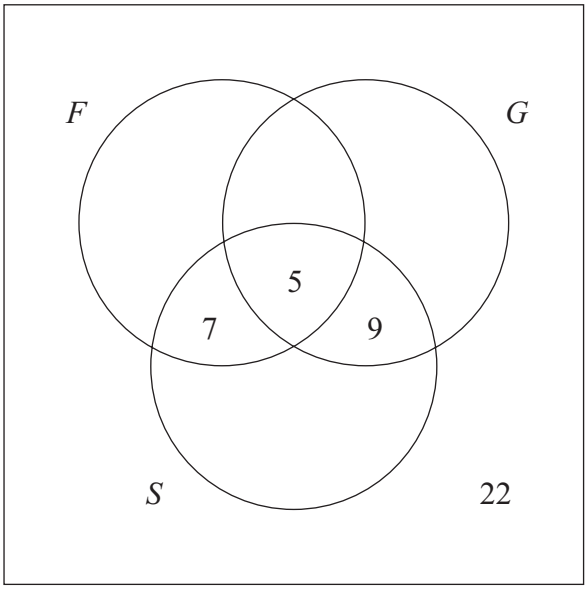
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 2 continued

(Total for Question 2 is 12 marks)

3. In a survey 120 people were each asked which of the countries France (F), Germany (G) and Spain (S) they had visited.

The incomplete Venn diagram gives some information about the results of the survey.



A person from the survey is chosen at random.

(a) Find the probability that

(i) of these three countries, this person only visited France and Spain,

(ii) this person did not visit any of these three countries.

(2)

Given that

- of the 52 people who had visited France, 9 also visited Germany
- $P(F \cup G) = \frac{41}{60}$

(b) complete the Venn diagram.

(4)

(c) Find

(i) $P(F' \cap G')$

(ii) $P(F \cap G \mid S)$

(3)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 3 continued

(Total for Question 3 is 9 marks)

4. The discrete random variable X has the following probability distribution

x	0	2	3
$P(X = x)$	a	$2b$	b

where a and b are constants.

The cumulative distribution function of X is given by

x	0	2	3
$F(x)$	$\frac{1}{2}$	c	d

where c and d are constants.

(a) Find

(i) the value of a

(ii) the value of d

(iii) the value of b

(iv) the value of c

(6)

(b) Find

(i) $E(12X + 4)$

(3)

(ii) $Var(12X + 4)$

(4)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 4 continued

Question 4 continued

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 4 continued

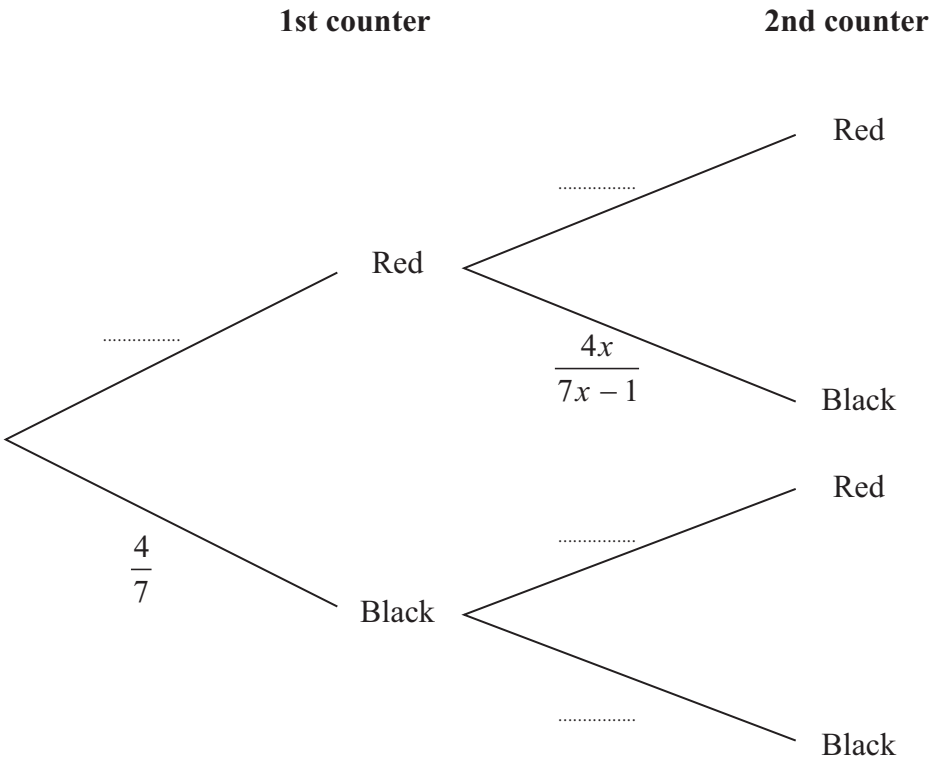
(Total for Question 4 is 13 marks)

5. There are $7x$ counters in a box.

The box contains red and black counters only, in the ratio 3 : 4

Two counters are selected at random, one at a time without replacement, from the box.

(a) Complete the tree diagram for this information.



(3)

The probability that the two counters selected are different colours is $\frac{32}{63}$

(b) Find the total number of counters in the box before the two counters are selected.

(4)

Given that the second counter is red,

(c) find the probability that the first counter is black.

(3)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 5 continued

Question 5 continued

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 5 continued

(Total for Question 5 is 10 marks)

6. The random variable X has a discrete uniform distribution where

$$P(X = x) = \frac{1}{5} \qquad \text{for } x = 1, 2, 3, 4, 5$$

(a) Find $P(X + 2 < 3X - 4)$

(2)

(b) Find $E(X^2)$

(2)

Given that $E(aX + 5) = 6$ where a is a constant,

(c) find the value of $Var(3 - aX)$
You must show your working.

(6)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 6 continued

(Total for Question 6 is 10 marks)

7. The time taken, X minutes, to complete an olympic triathlon is modelled by a normal distribution with mean 180 minutes and standard deviation 20 minutes.

(a) Using standardisation, show that the proportion of competitors that take longer than 210 minutes to complete an olympic triathlon is 6.68% according to the model.

(2)

Russell is preparing for an olympic triathlon. Russell aims to finish in the first 15% of all competitors.

(b) Using standardisation, estimate the longest time that Russell can take to complete the triathlon and achieve his aim, according to the model.

(3)

The time taken, Y minutes, to complete a sprint triathlon is modelled by a normal distribution with mean μ minutes and standard deviation σ minutes.

Given that $P(Y < \mu + 5) = 0.7967$

(c) (i) find $P(Y < \mu - 5 \mid Y < \mu)$

(2)

(ii) Show that, to the nearest whole number, $\sigma = 6$

(2)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 7 continued

Question 7 continued

(Total for Question 7 is 9 marks)

TOTAL FOR PAPER IS 75 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA