Past-paper walk-through

Interpreting statistical data ▪ E9.2

eXercise

Questions in this set

- 0580/42 N25 Q6 ▪ 2 marks
- 0580/42 N25 Q16 ▪ 8 marks
- 0580/43 N25 Q23 ▪ 7 marks
- 0580/22 J25 Q13 ▪ 6 marks
- 0580/41 J25 Q15 ▪ 8 marks

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- // separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = "or words to that effect" – the wording need not match.

Question 6

0580/42 N25 ▪ Q6 ▪ 2 marks

6 One morning, a dentist has appointments for 10 patients.
The stem-and-leaf diagram shows the waiting time for 8 of these patients. 0 1 4 1 0 2 9 2 1 5 5
Key: 1 | 0 represents 10 minutes
The times for the two other patients, P and Q, are not shown in the stem-and-leaf diagram.
The mean waiting time of all 10 patients that morning is 16 minutes.
The range of waiting times is 26 minutes.
Patient P waits longer than patient Q.
Find the waiting time for each of patient P and patient Q.
Patient P min
Patient Q min

Question 6

[4] **[2]**

Solution 6

tient P = 27

tient Q = 16

- 4 B1 for answer P = 27 M2
- for 10 × 16 – (1 + 4 + 10 + 12 + 19 + 21 + 25
- + 25 + their 27) oe isw
- or M1 for 10 × 16 oe
- or for 1 4 1 0 1 2 1 9 21 25 25/10 + +
- +

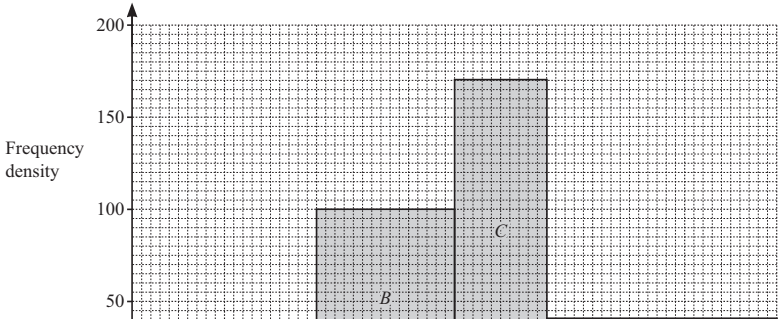
Solution 6

- +
- +
- +
- +
- +
- +
- P Q = 16 oe

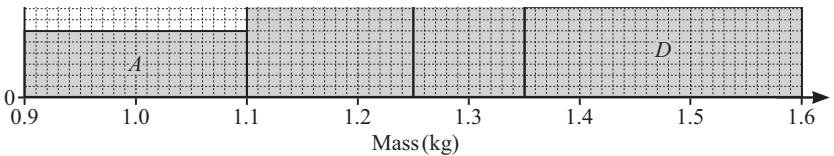
Question 16

0580/42 N25 ▪ Q16 ▪ 8 marks

16 The histogram shows information about the masses of some coconuts.
The masses are classified into four categories A, B, C and D.



Question 16



(a) Show that there are 10 coconuts in category *D*.

Question 16

[1]

(b) Two of the coconuts from those in category *C* and category *D* are chosen at random.

Find the probability that both are from category *D*.

Question 16

(c) Calculate an estimate of the mean mass of the coconuts.

Question 16

Solution 16

(a)

Mark scheme

- $(1.6 - 1.35)$ oe $\times$ 40 $[= 10]$
- 1

Solution 16

(b) Mark scheme

- 5
- 39 oe
- 3 M2 for
- 10
- 9
- 10 170 0.1
- 9 170 0.1
- ×

Solution 16

- $+$
- $\times$
- $+$
- $\times$
- oe
- or M1 for
- 10
- 9
- 9
- 10

Solution 16

- or
- or
- or
- 10 17
- 10 16
- 10 17
- 10 16
- +
- +
- +

Solution 16

- $+$
- oe
- seen
- or $10/9$
- 1
- $\times$
- $-$
- k
- k
- oe with k $>$ 10 and an integer

Solution 16

- or
- 1
- 10 17
- 10 16
- $-$
- $\times$
- $+$
- $+$
- m
- m

Solution 16

- oe with $0 < m < 27$ and an integer

Solution 16

(c) Mark scheme

- 1.26 or 1.259... nfww
- 4 M1 for frequencies 6, 15, 17 soi M1
- for midpoints soi (1, 1.175, 1.3, 1.475) M1
- for use of their $\Sigma fm \div$ their Σf with m in correct
- interval including both boundaries
- 0580/42
- October/November 2025
- Partial Marks

Question 23

0580/43 N25 ▪ Q23 ▪ 7 marks

23 The table shows some information about the mass of each of 200 oranges.

Mass (m grams)	$180 < m \leqslant 200$	$200 < m \leqslant 210$	$210 < m \leqslant 215$	$215 < m \leqslant 230$
Frequency	32	64	74	30

(a) Calculate an estimate of the mean mass of an orange.

Question 23

Question 23

(b) Sarah draws a histogram to show this information.
The table shows the height of one of the bars for this histogram.

Complete the table.

Mass (m grams)	$180 < m \leqslant 200$	$200 < m \leqslant 210$	$210 < m \leqslant 215$	$215 < m \leqslant 230$
Height of bar (cm)			7.4	

[3]

Question 23

[5]

Solution 23

(a) Mark scheme

- 208
- 4 M1 for midpoints soi
- 190, 205, 212.5, 222.5 **M1**
- for use of Σfx where x is in the
- correct interval including boundaries
- $190 \times 32 + 205 \times 64 + 212.5 \times 74 +$
- 222.5×30 **M1**
- (dep on second M1) for $\Sigma fx \div 200$

Solution 23

(b) Mark scheme

- 0.8 3.2 1
- 3 B2 for two correct
- or B1 for one correct
- or M1 for three of 1.6, 6.4, 14.8 and 2
- seen
- 0580/43
- October/November 2025
- Partial Marks

Question 13

0580/22 J25 ▪ Q13 ▪ 6 marks

13 **(a)** 100 students solve a puzzle.
The table shows information about the time taken by each student to solve the puzzle.

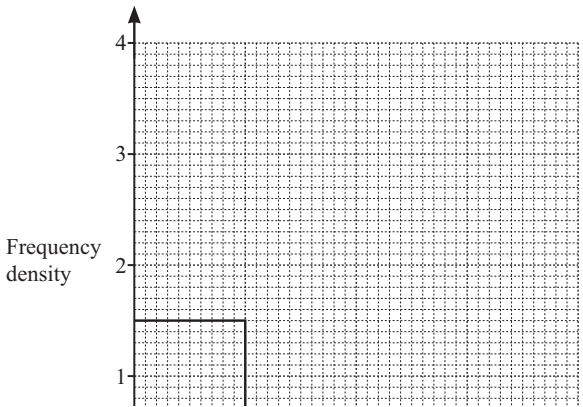
Time (t seconds)	$20 < t \leqslant 40$	$40 < t \leqslant 60$	$60 < t \leqslant 100$
Frequency	30	40	30

(i) Work out an estimate of the mean.

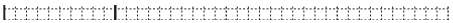
Question 13

Question 13

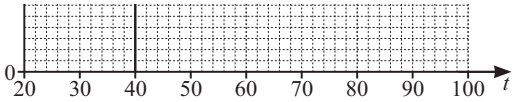
(ii) Complete the histogram to show the information in the table.



Question 13



Question 13



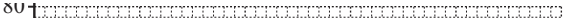
[2]

(b) 80 adults solve the same puzzle as the students.
The cumulative frequency table shows information about the time taken by each adult to solve the puzzle.

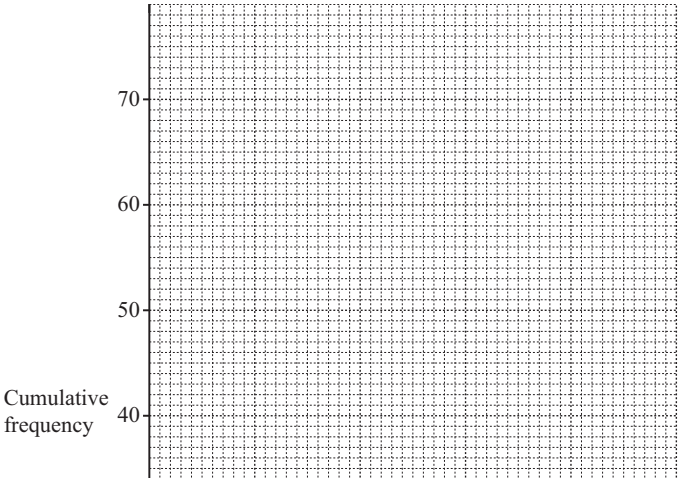
Time (t seconds)	$t \leqslant 20$	$t \leqslant 40$	$t \leqslant 60$	$t \leqslant 80$	$t \leqslant 100$	$t \leqslant 120$
Cumulative frequency	0	12	36	60	74	80

(i) On the grid, draw a cumulative frequency diagram.

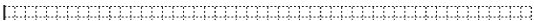
Question 13



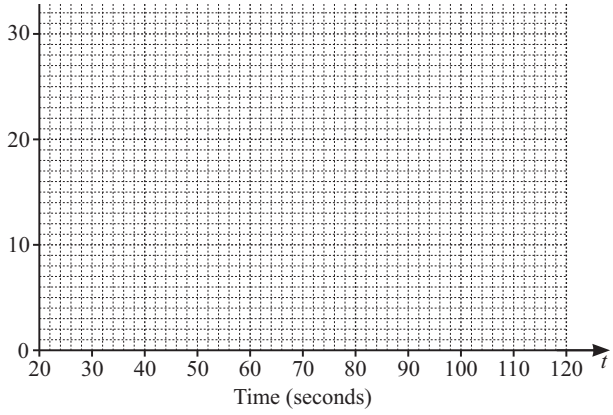
Question 13



Question 13



Question 13



[3]

(ii) Use your cumulative frequency diagram to find an estimate for

Question 13

(ii) Use your cumulative frequency diagram to find an estimate for

Question 13

(a) the median

Question 13

(b) the lower quartile.

Solution 13

(a)(i)

Mark scheme

- 53
- 4 M1 for correct midpoints soi M1
- for Σfx where x is in correct interval
- including boundaries M1
- for $\Sigma fx \div 100$ dep on second M1

Solution 13

(a)(ii)

Mark scheme

- Two correct bars with correct widths
- and heights 2 and 0.75
- 2 B1 for one correct bar
- or M1 for 40/20 oe and 30/40 oe soi

Solution 13

(b)(i) Mark scheme

- Correct diagram
- 3 B1 for correct horizontal placement for 6
- plots **B1**
- for correct vertical placement for 6 plots
- B1FT dep on at least B1 for reasonable
- increasing curve or polygon through their 6
- points
- If 0 scored, SC1 for 5 out of 6 points

Solution 13

- correctly plotted
- 13(b)(ii)(a) 62 to 64
- 1 FT their increasing curve or polygon
- reading at 40
- 13(b)(ii)(b) 46 to 48
- 1 FT their increasing curve or polygon
- reading at 20

Question 15

0580/41 J25 ▪ Q15 ▪ 8 marks

15 The height of each of 140 basketball players is recorded.
The table shows the results.

Height (h cm)	$160 < h \leqslant 180$	$180 < h \leqslant 185$	$185 < h \leqslant 190$	$190 < h \leqslant 200$	$200 < h \leqslant 210$
Frequency	7	12	31	70	20

(a) Calculate an estimate of the mean height.

Question 15

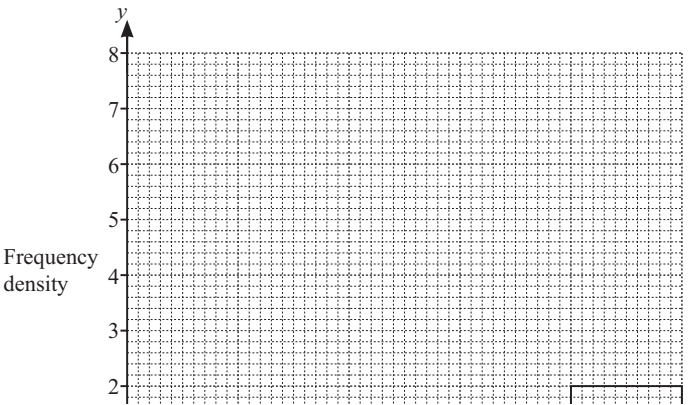
Question 15

(b) Two of the players are chosen at random.

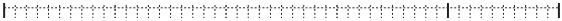
Find the probability that both players have a height greater than 190 cm and no more than 200 cm.

Question 15

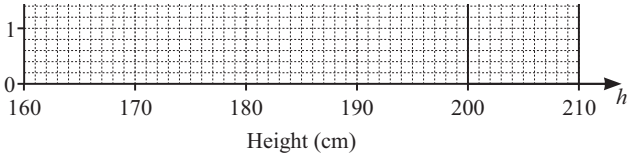
(c) Complete the histogram to show the information in the frequency table.



Question 15



Question 15



[3]

16 Mateo invests \$1250 at a rate of r% per year compound interest.
At the end of 6 years the total value of his investment is \$1484.

Calculate the value of r.

Question 15

Question 15

Solution 15

(a)

Mark scheme

- 192 or 192.4... nfww
- 4 M1 for midpoints soi
- (170, 182.5, 187.5, 195, 205) M1
- for use of Σfm with m in correct interval
- including both boundaries M1
- (dep on second M1) for $\Sigma fm \div 140$

Solution 15

(b)

Mark scheme

- 69
- 278 oe
- 2 M1 for 70/69 140
- 139
- ×

Solution 15

(c) Mark scheme

- Correct histogram
- 3 B2 for three correct blocks
- or B1 for two correct blocks
- If 0 scored, SC1 for three of
- 7 12 31 70
- ,
- ,
- ,

Solution 15

- 20 5
- 5 10 or 0.35, 2.4, 6.2, 7