

1. Mary recorded the heights, in centimetres, of the girls in her class.

She put the heights in order.

132	144	150	152	160	162	162	167
167	170	172	177	181	182	182	

(a) Find

(i) the lower quartile,

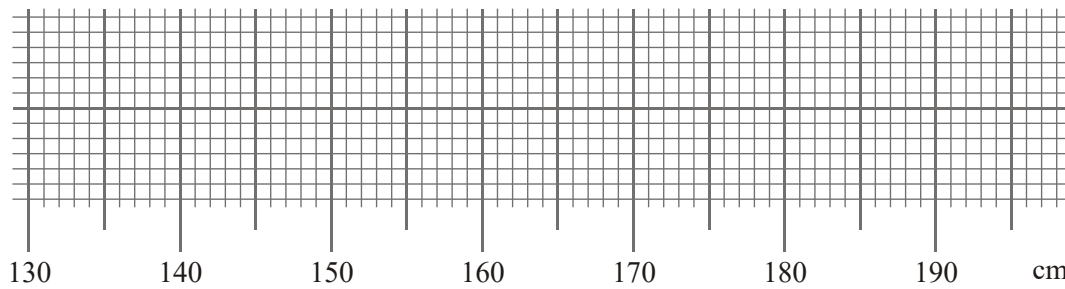
..... cm

(ii) the upper quartile.

..... cm

(2)

(b) On the grid, draw a box plot for this data.



(3)

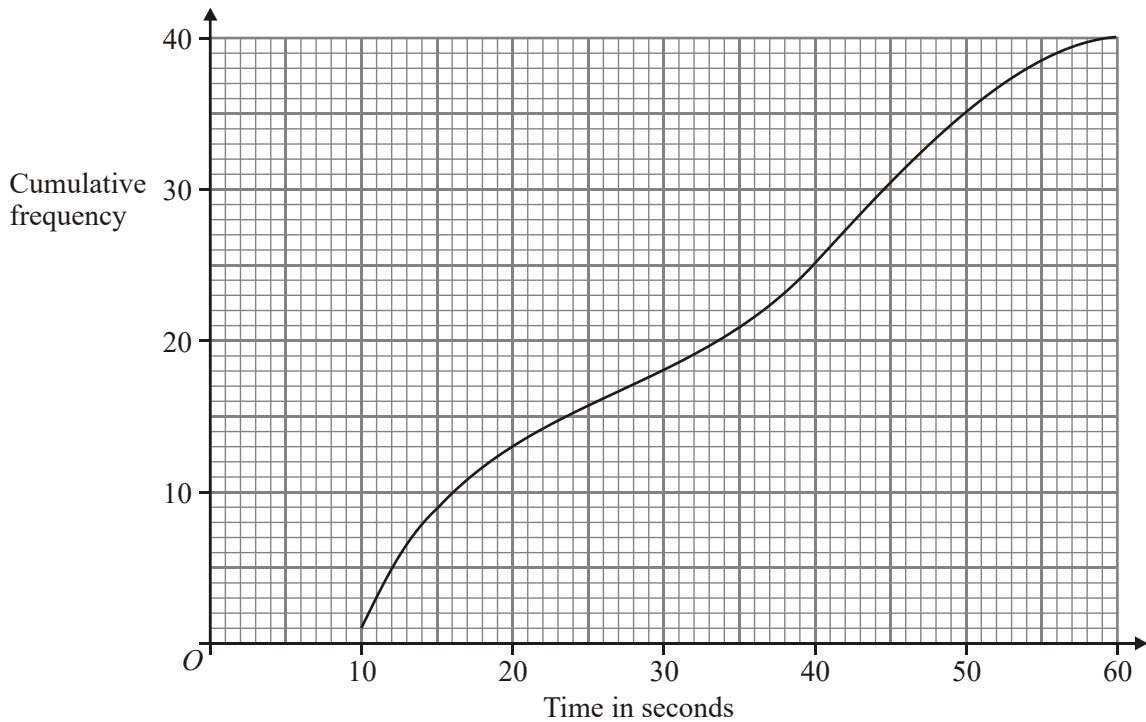
(Total 5 marks)

2. 40 boys each completed a puzzle.
The cumulative frequency graph below gives information about the times it took them to complete the puzzle.

- (a) Use the graph to find an estimate for the median time

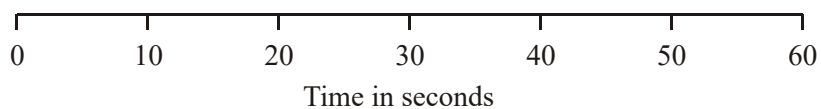
..... seconds

(1)



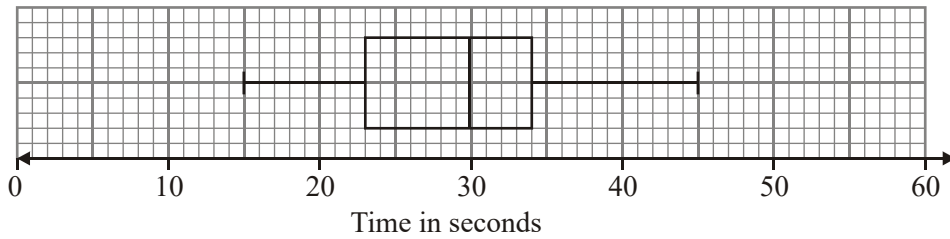
For the boys
the minimum time to complete the puzzle was 9 seconds
and the maximum time to complete the puzzle was 57 seconds.

- (b) Use this information and the cumulative frequency graph to draw a box plot showing information about the boy's times.



(3)

The box plot below shows information about the times taken by 40 girls to complete the same puzzle.



(c) Make **two** comparisons between the boys' times and the girls' times.

.....

.....

(2)
(Total 6 marks)

3. The table gives information about the ages of 160 employees of an IT company.

Age (A) in years	Frequency
$15 < A \leq 25$	44
$25 < A \leq 35$	56
$35 < A \leq 45$	34
$45 < A \leq 55$	19
$55 < A \leq 65$	7

(a) Write down the modal class interval.

.....

(1)

(b) Complete the cumulative frequency table.

Age (A) in years	Cumulative Frequency
$15 < A \leq 25$	
$15 < A \leq 35$	
$15 < A \leq 45$	
$15 < A \leq 55$	

$15 < A \leq 65$	
------------------	--

(1)

(c) On the grid below, draw a cumulative frequency graph for your table.

(2)

(d) Use your graph to find an estimate for

(i) the median age of the employees,

..... years

(i) the interquartile range of the ages of the employees.

..... years

(3)

Another IT company has 80 employees.

The age of the youngest employee is 24 years.

The age of the oldest employee is 54 years.

The median age is 38 years.

The lower quartile age is 30 years.

The upper quartile age is 44 years.

(e) On the grid below, draw a box plot to show information about the ages of the employees.

(2)

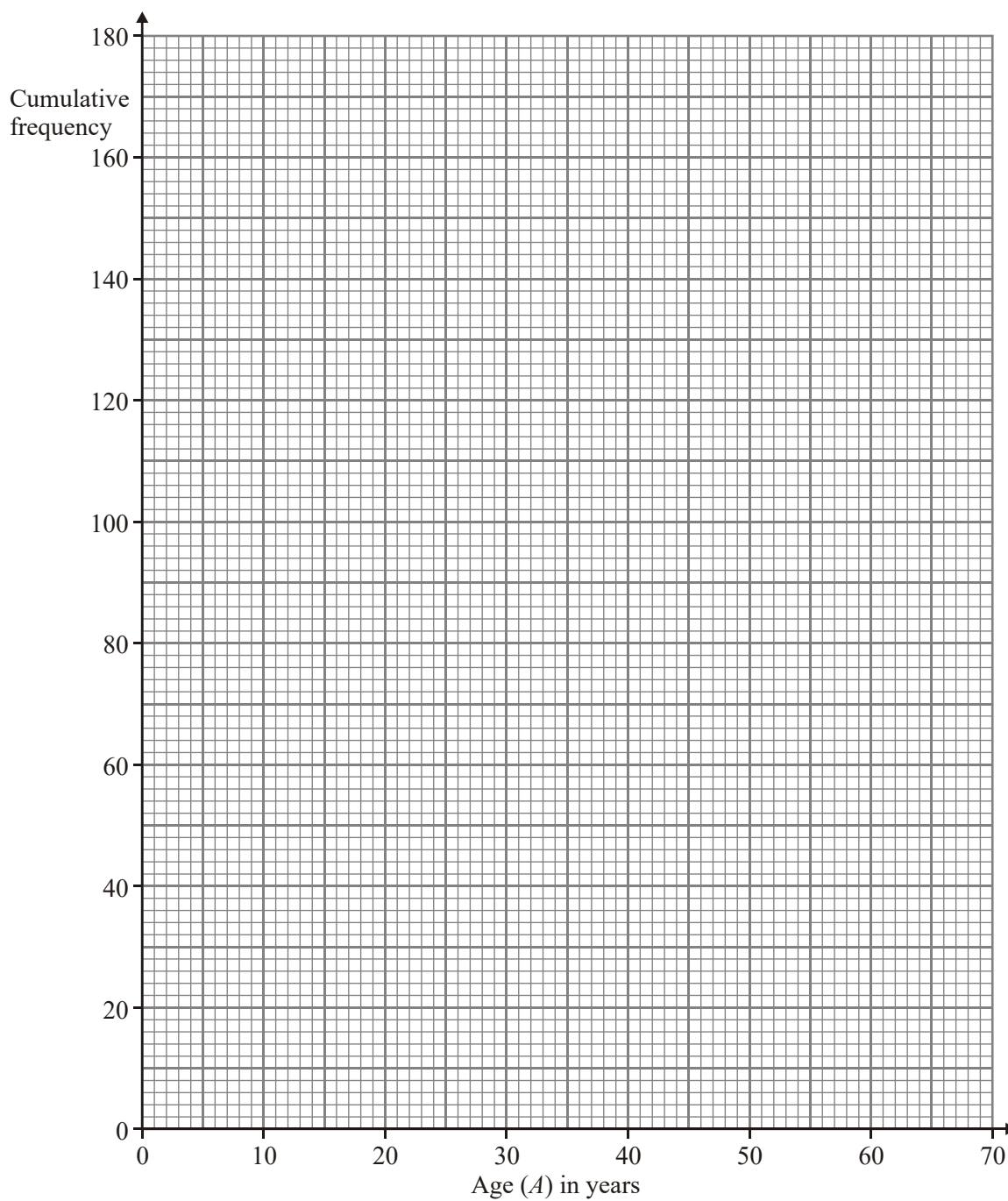
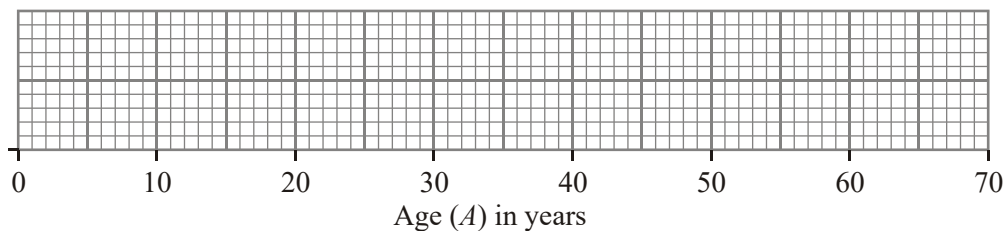


Diagram for part (e).



(Total 9 marks)

4. The table gives information about the ages of 160 employees of an IT company.

Age (A) in years	Frequency
$15 < A \leq 25$	44
$25 < A \leq 35$	56
$35 < A \leq 45$	34
$45 < A \leq 55$	19
$55 < A \leq 65$	7

- (a) Complete the cumulative frequency table.

Age (A) in years	Cumulative Frequency
$15 < A \leq 25$	
$15 < A \leq 35$	
$15 < A \leq 45$	
$15 < A \leq 55$	
$15 < A \leq 65$	

(1)

- (b) On the grid below, draw a cumulative frequency graph for your table.

(2)

(c) Use your graph to find an estimate for

(i) the median age of the employees,

..... years

(ii) the interquartile range of the ages of the employees.

..... years

(3)

Another IT company has 80 employees.

The age of the youngest employee is 24 years.

The age of the oldest employee is 54 years.

The median age is 38 years.

The lower quartile age is 30 years.

The upper quartile age is 44 years.

(d) On the grid, draw a box plot to show information about the ages of the employees.

(2)

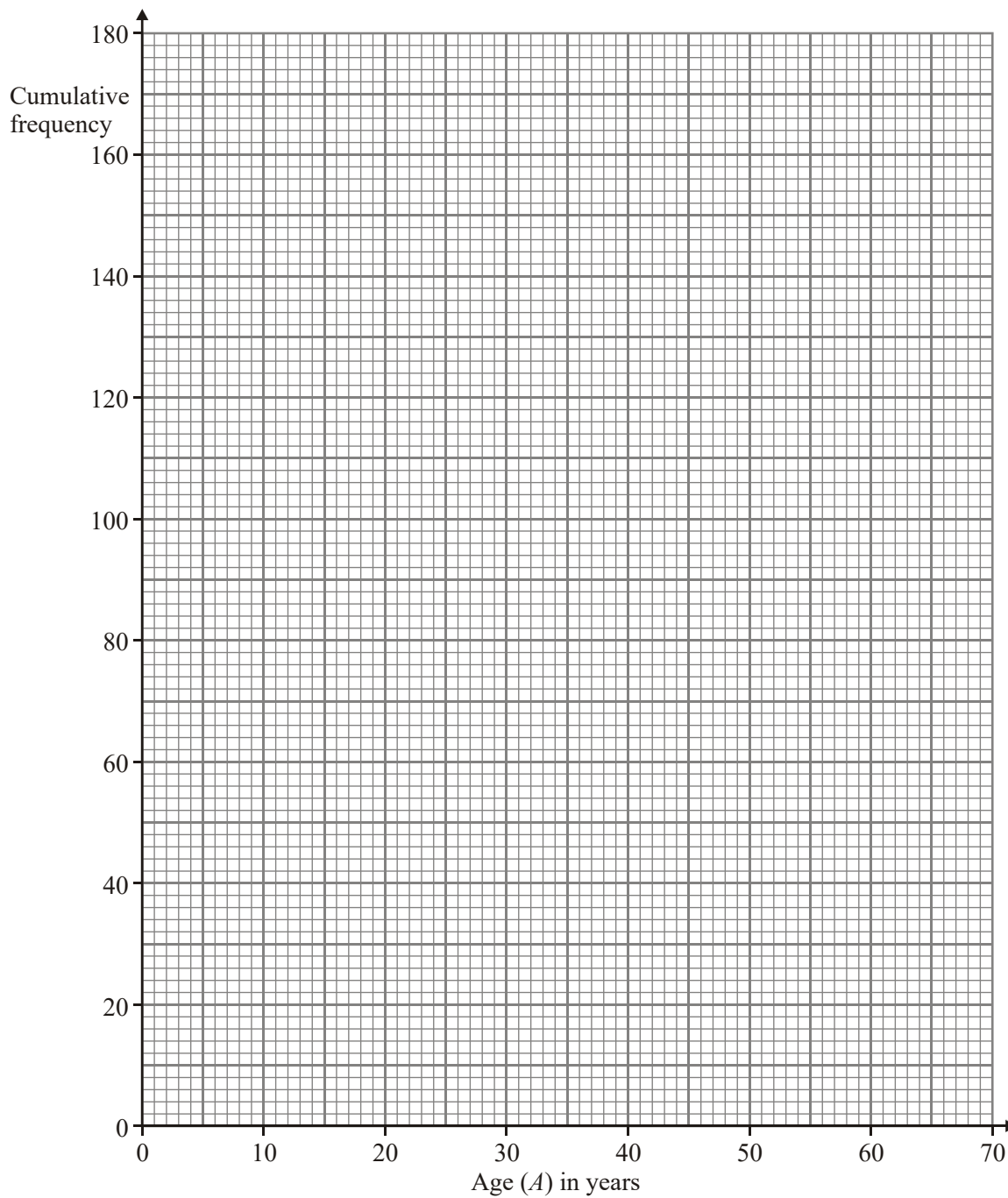
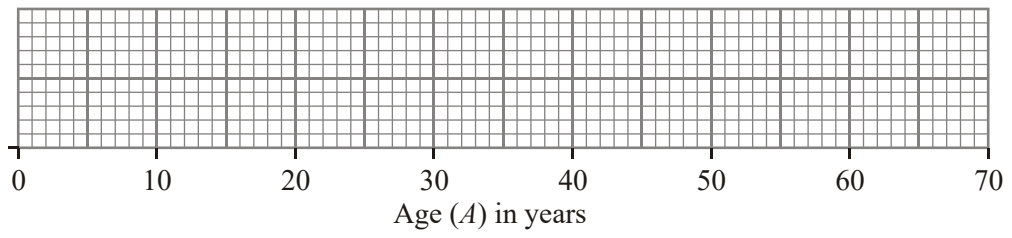
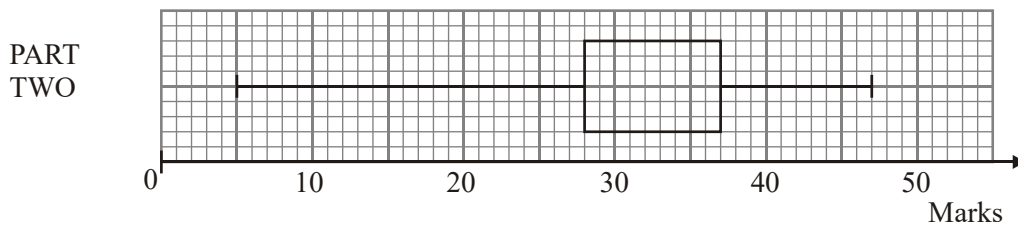
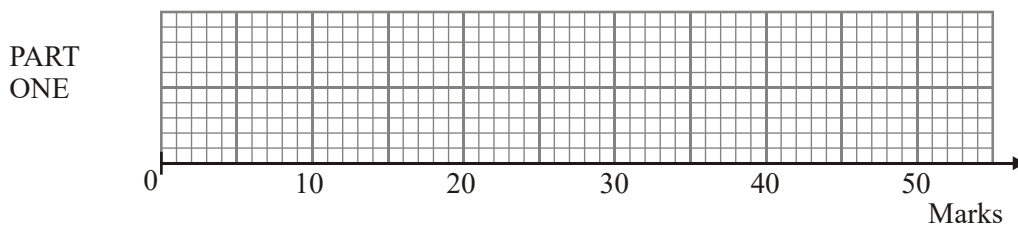
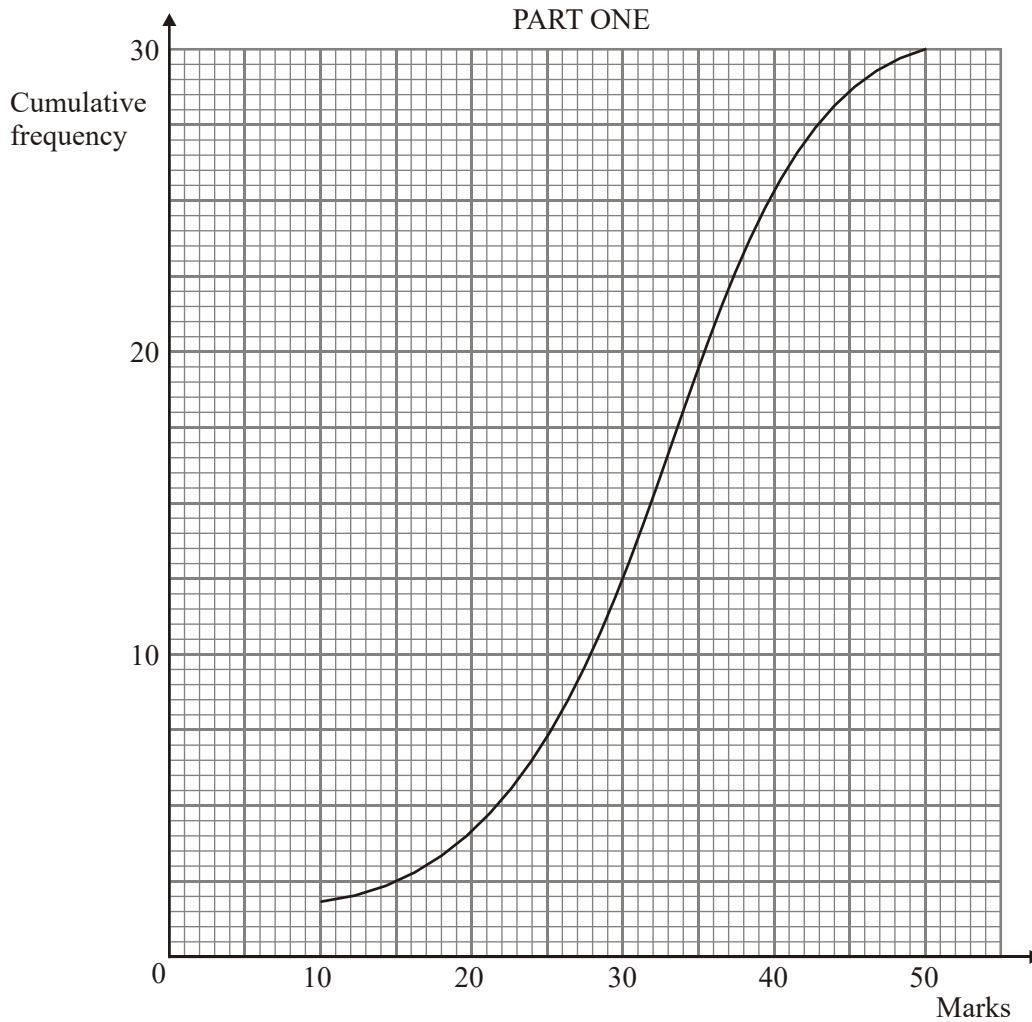


Diagram for part (d).



(Total 8 marks)

5. 30 students took part in a National Science quiz.
 The quiz was in two parts.
 The cumulative frequency graph on the grid below gives information about the marks scored in Part One.
 The lowest mark was 5 and the highest mark was 47.



- (a) In the space provided on the grid, draw a box plot using the cumulative frequency graph for the results of Part One.

(3)

The diagram also shows a box plot for the results of Part Two. Use the box plots to compare the two distributions.

- (b) Give **two** differences between them.

First difference.....

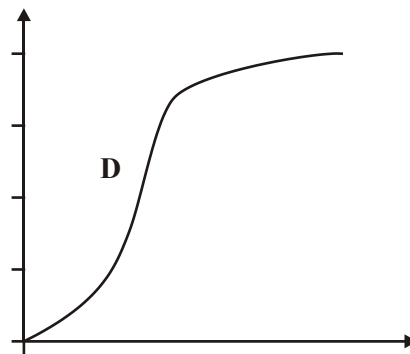
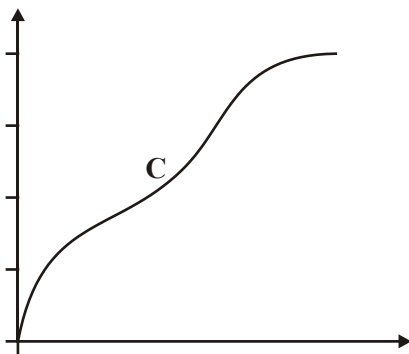
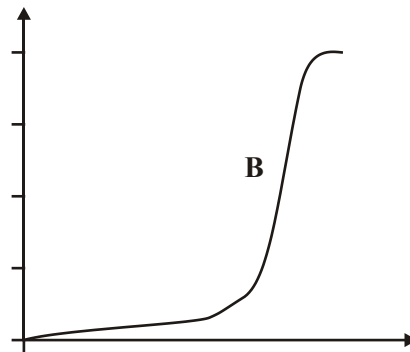
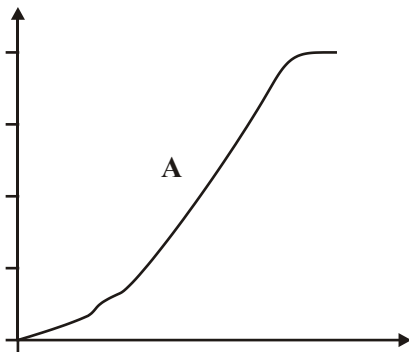
.....

Second difference.....

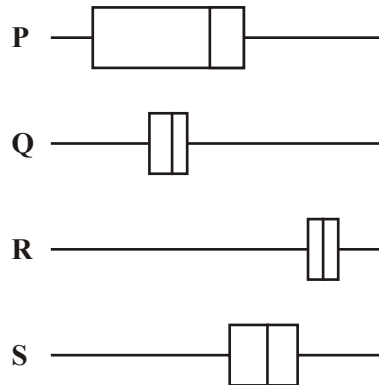
.....

(2)
(Total 5 marks)

6. Here are four cumulative frequency diagrams.



Here are four box plots.



For each box plot, write down the letter of the appropriate cumulative frequency diagram.

P and

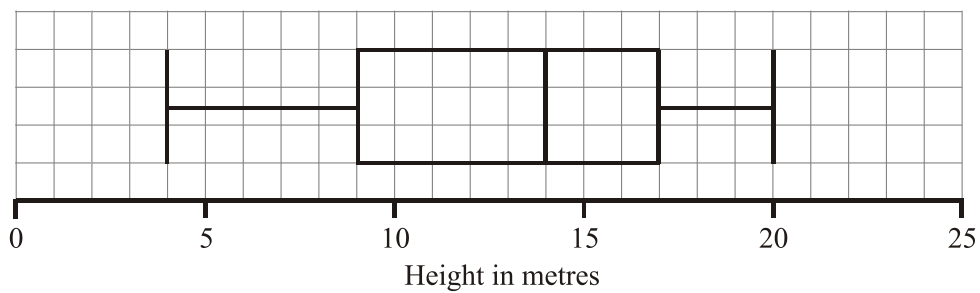
Q and

R and

S and

(Total 2 marks)

7. The box plot gives information about the distribution of the heights of all the trees in a wood.



(a) Write down the median height of the trees.

..... m

(1)

(b) Work out the interquartile range of the heights of the trees.

..... m

(1)

There are 300 trees in the wood.

(c) Work out the number of trees in the wood with a height of 17 m or more.

.....

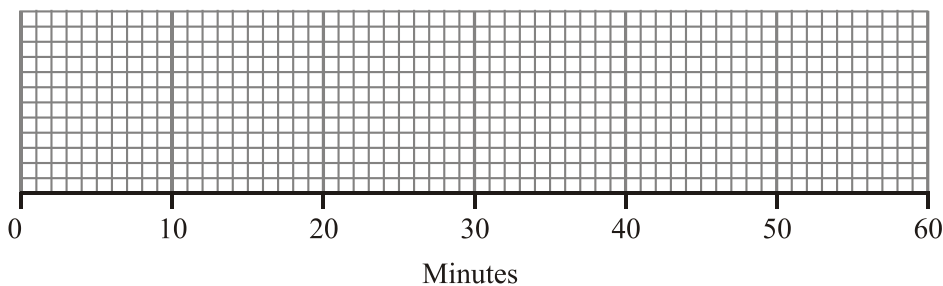
(2)

(Total 4 marks)

8. Mrs Raja set work for the students in her class. She recorded the time taken, in minutes, for each student to do the work. She used her results to work out the information in the table.

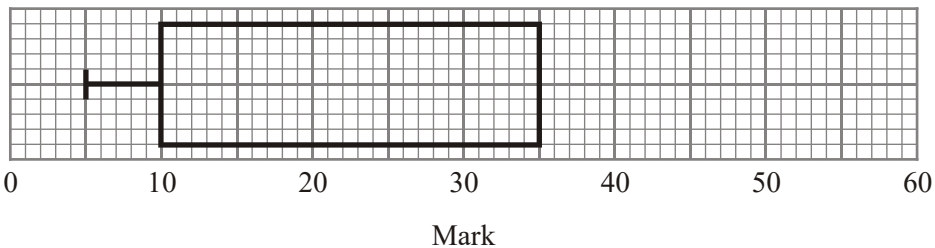
	Minutes
Shortest time	4
Lower quartile	14
Median	26
Upper quartile	30
Longest time	57

On the grid, draw a box plot to show the information in the table.



(Total 2 marks)

9. The incomplete box plot and table show some information about some marks.



	Mark
Lowest mark	5
Lower quartile	
Median	30
Upper quartile	35
Highest mark	55

(a) Use the information in the table to complete the box plot.

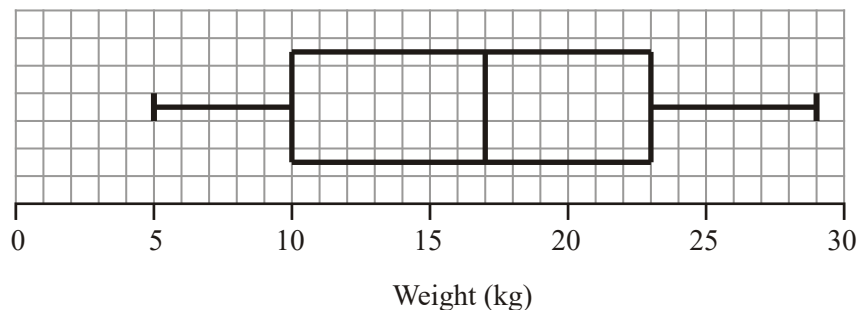
(2)

(b) Use the information in the box plot to complete the table.

(1)

(Total 3 marks)

10. The box plot gives information about the distribution of the weights of bags on a plane.



- (a) Jean says the heaviest bag weighs 23 kg.

She is **wrong**.
Explain why.

.....
.....

(1)

- (b) Write down the median weight.

..... kg

(1)

- (c) Work out the interquartile range of the weights.

..... kg

(1)

There are 240 bags on the plane.

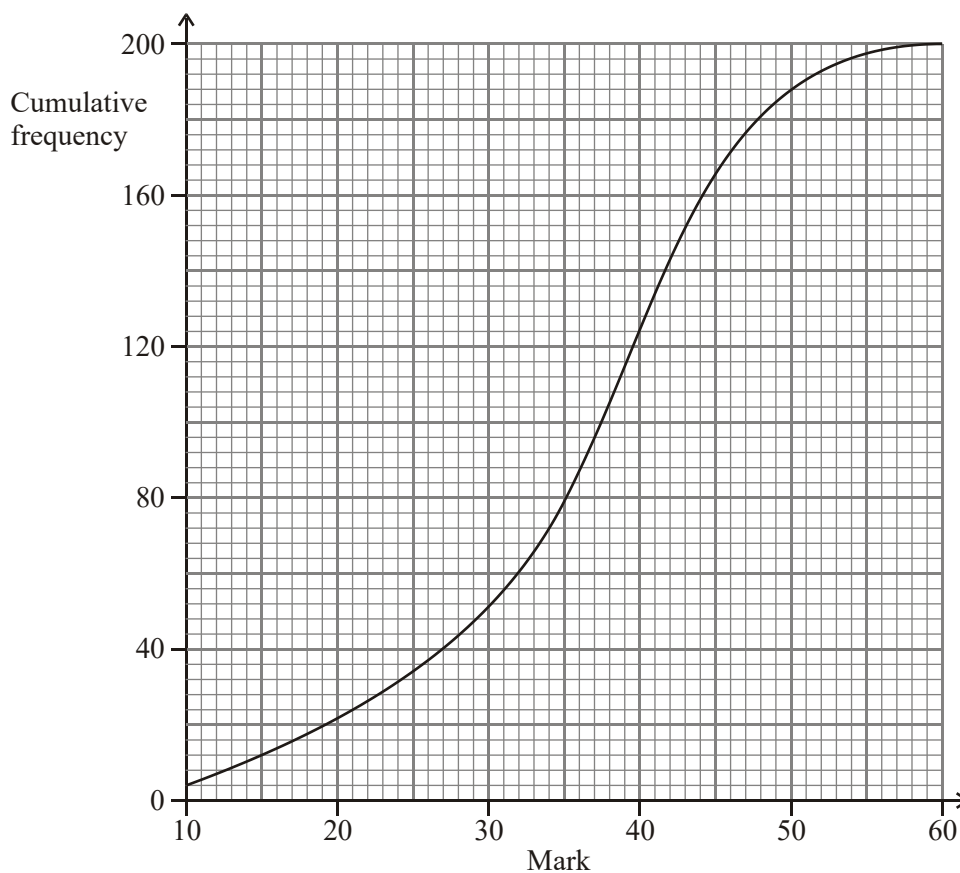
- (d) Work out the number of bags with a weight of 10 kg or less.

.....

(2)

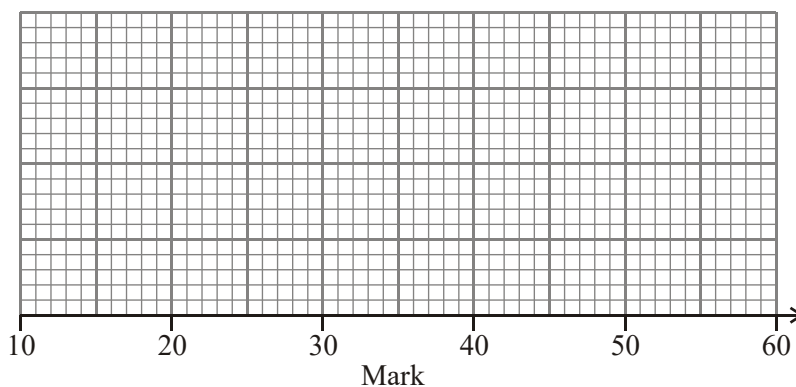
(Total 5 marks)

11. 200 students took a test.
The cumulative frequency graph gives information about their marks.



The lowest mark scored in the test was 10.
The highest mark scored in the test was 60.

Use this information and the cumulative frequency graph to draw a box plot showing information about the students' marks.

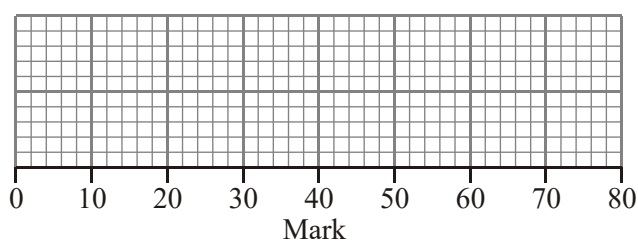


(Total 3 marks)

12. Some students took a test.
The table shows information about their marks.

Minimum mark	10
Lower quartile	33
Interquartile range	35
Median mark	43
Range	65

Use this information to draw a box plot.



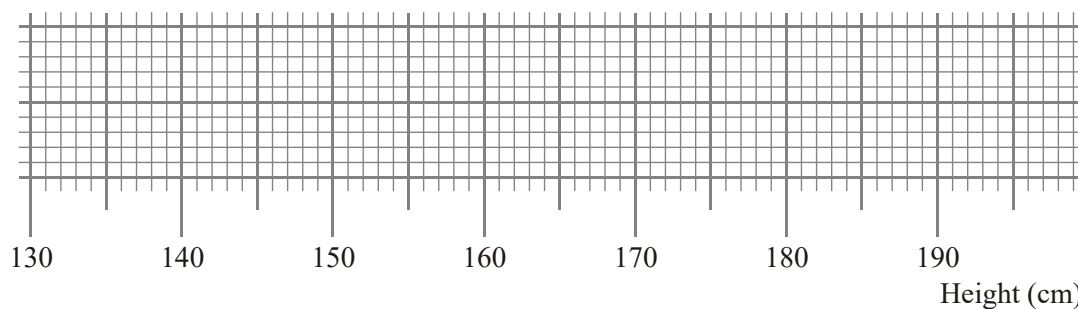
(Total 3 marks)

13. Lottie measured the heights, in centimetres, of the girls in her class.

The table shows some information about the heights.

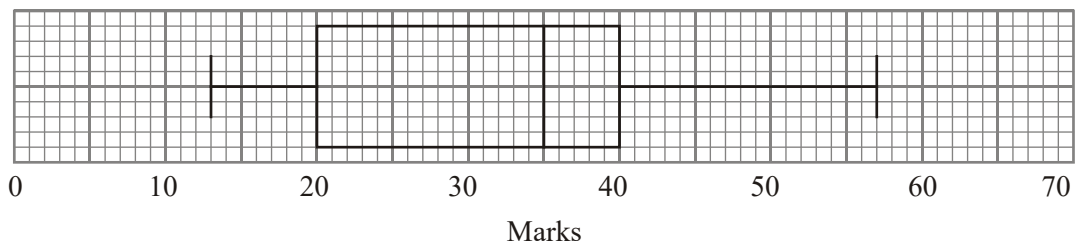
Height of shortest girl	137 cm
Height of tallest girl	180 cm
Median	162 cm
Lower quartile	148 cm
Upper quartile	172 cm

On the grid, draw a box plot to show this information.



(Total 2 marks)

14. The box plot shows information about the marks scored in a test by some students.



- (a) Write down the median mark.

.....

(1)

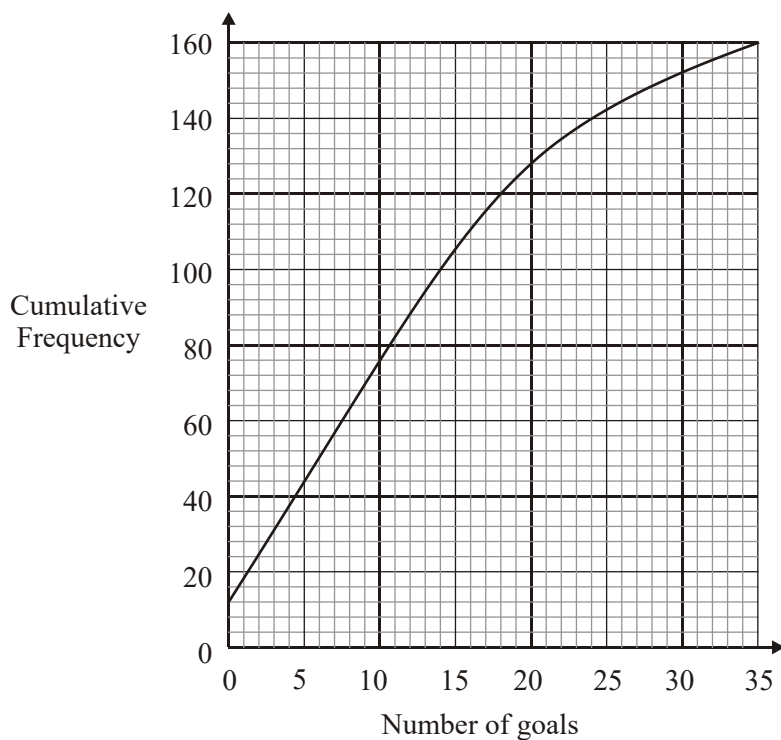
- (b) Work out the range of the marks.

.....

(1)

(Total 2 marks)

15. The cumulative frequency graph shows some information about the numbers of goals scored by 160 players.



(a) Use this graph to find an estimate for

(i) the median,

..... goals

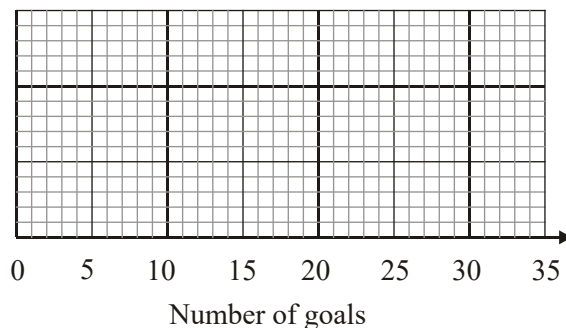
(ii) the lower quartile.

..... goals

(2)

The lowest number of goals scored was 0
 The highest number of goals scored was 32

(b) On the grid, draw a box plot to show information about the numbers of goals scored.



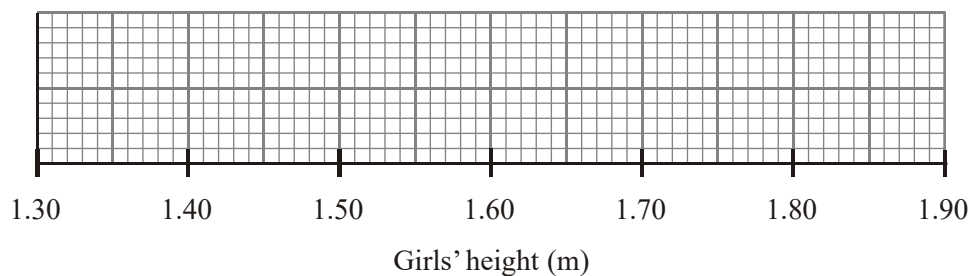
(3)
 (Total 5 marks)

16. Verity records the heights of the girls in her class.

The height of the shortest girl is 1.38 m.
 The height of the tallest girl is 1.81 m.

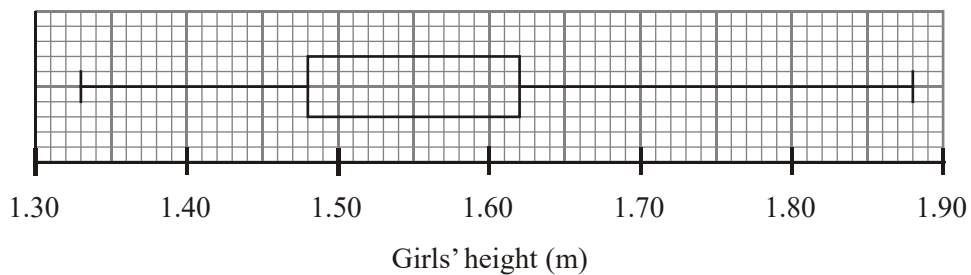
The median height is 1.63 m.
 The lower quartile is 1.54 m.
 The interquartile range is 0.14 m.

(a) On the grid, draw a box plot for this information.



(3)

The box plot below shows information about the heights of the boys in Verity's class.



(b) Compare the distributions of the boys' heights and the girls' heights.

.....

.....

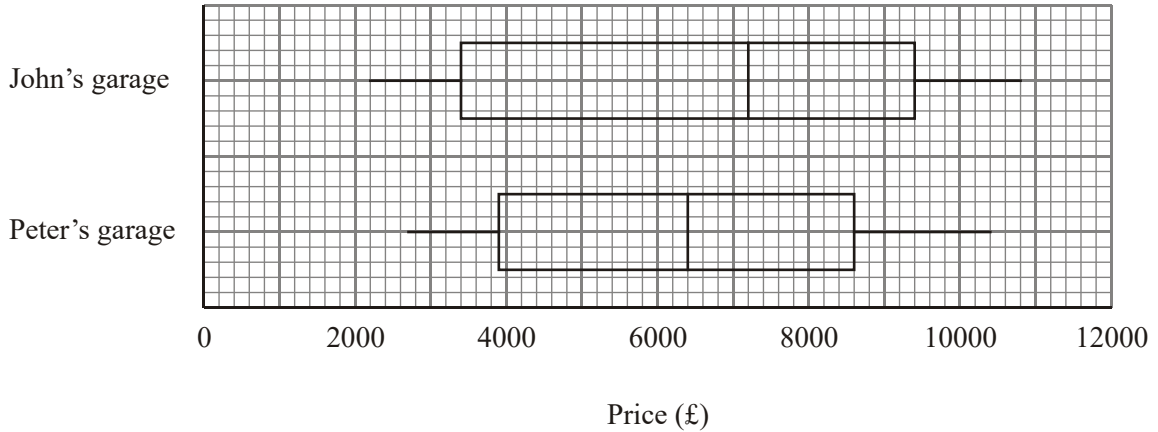
.....

.....

(2)
(Total 5 marks)

17. John and Peter each own a garage.
They both sell used cars.

The box plots show some information about the prices of cars at their garages.



Compare the distribution of the prices of cars in these two garages.
Give **two** comparisons.

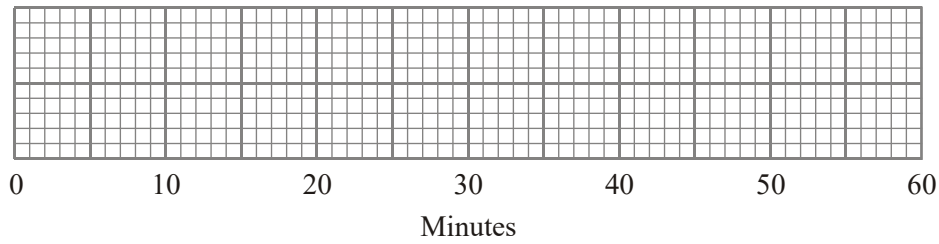
- 1
-
- 2
-

(Total 2 marks)

18. On Friday, Peter went to the airport.
He recorded the number of minutes that each plane was delayed.
He used his results to work out the information in this table.

	Minutes
Shortest delay	0
Lower quartile	2
Median	8
Upper quartile	18
Longest delay	41

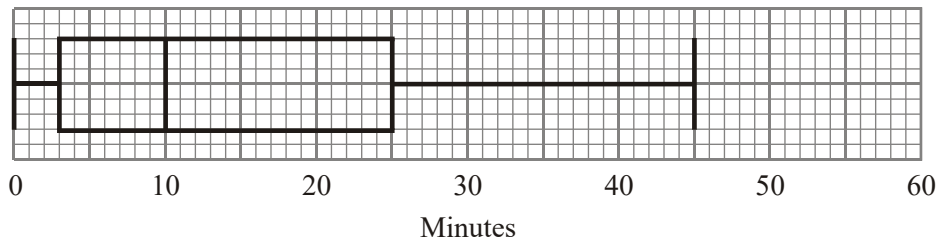
- (a) On the grid, draw a box plot to show the information in the table.



(2)

Peter also went to the airport on Saturday.
He recorded the number of minutes that each plane was delayed.

The box plot below was drawn using this information.



- (b) Make two comparisons between the distributions of plane delays on Friday and on Saturday.

.....

.....

.....

.....

(2)
(Total 4 marks)

01. (a) (i) 152 2
Blcao
- (ii) 177
Blcao

(b) 3

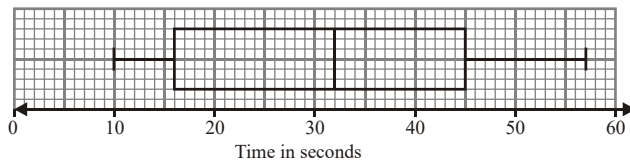
B1 for median marked at 167
B1 ft for position of box with its ends at "152" and "177"
B1 for position of whiskers with ends at 132 and 182
NB: For any points plotted between 141 and 149 give a tolerance of an extra ± 1 square

[5]

02. (a) 32 1

B1 for 32 (accept 31.5 to 33.5 inclusive)

(b) 3



B1 for ends of whiskers at 9 and 57 (with a box)
B1 for ends of box at 16 and 45/46 (± 0.5)
B1 for median marked at "32" or complete box and whisker diagram drawn with a median inside the box

(c) Median(B) > Median(G); on average boys take longer
 IQR(B) > IQR(G); times for boys have a greater spread 2

B1 eg for comparison of medians (ft on diagrams)
B1 eg for comparison of (interquartile) ranges (ft on diagram)

[6]

03. (a) $25 < A \leq 35$ 1
B1 cao
- (b) 44, 100, 134, 153, 160 1
B1 cao
- (c) 2
*B1 ft for at least 4 of 5 points plotted correctly $\pm \frac{1}{2}$ sq at end of interval dep on sensible table (condone 1 addition error)
 B1 ft (dep on previous B1) for points joined by curve or line segments provided no gradient is negative – ignore any part of graph outside range of their points
 (SC B1 if 4 or 5 pts plotted not at end but consistent within each interval and joined)*
- (d) (i) 30 to 32 3
 Median 30 – 32
B1 ft from their cf graph $\pm \frac{1}{2}$ sq
- (ii) 15 to 18
 IQR 40 – 24
*M1 ft from their cf graph identifying “120” and “40”
 A1 ft ± 1 sq*
- (e) 2
*B2 if fully correct
 B1 for box with median or quartiles or whiskers correct*

[9]

04. (a) 44, 100, 134, 153, 160
B1 cao 1
- (b) *B1 ft for at least 4 of 5 points plotted correctly $\pm \frac{1}{2}$ sq at end of interval dep on sensible table (condone 1 addition error)*
B1 ft (dep on previous B1) for points joined by curve or line segments provided no gradient is negative – ignore any part of graph outside range of their points
(SC B1 if 4 or 5 pts plotted not at end but consistent within each interval and joined) 2
- (c) 30 to 32
15 to 18
Median 30 – 32
IQR 40 – 24
B1 ft from their cf graph $\pm \frac{1}{2}$ sq
M1 ft from their cf graph identifying “120” and “40”
A1 ft ± 1 sq 3
- (d) *B2 if fully correct*
B1 for box with median or quartiles or whiskers correct 2
05. (a) Box plot drawn
B1 for median marked at 32.0 – 33.5
B1 for position of box with its ends at 24.0 – 26.5 and 37.0 – 39.5
B1 for position of ends of whiskers at 5 and 47 3
- (b) Reasons given
B1 (ft) for “greater median” for part 2
B1 (ft) for “smaller inter-quartile range” for part 2
Accept comparisons of lower and upper quartile. 2
06. P and C
Q and D
R and B
S and A
B2 for all correct
(B1 for exactly 2 or exactly 3 correct) 2

[8]

[5]

[2]

07. (a) 14
B1 cao 1
- (b) 8
B1 cao 1
- (c) $25/100 \times 300 = 75$
M1 for 25% of 300 or $300 \div 4$ or $\frac{1}{4} \times 300$ oe
A1 cao 2
- [4]**
08. Box plot 2
- 3 aspects:*
1st aspect – vertical line for median
2nd aspect – box using correct quartiles
3rd aspect – whiskers (could be single line) drawn with correct end points
B2 for fully correct box plot
(B1 for 1 aspect)
- [2]**
09. (a) Complete box plot
Median
Highest mark 2
- B1 line drawn at 30 and no other lines drawn within box*
B1 whisker drawn to 55
- (b) Complete table
10 1
- B1 for 10*
- [3]**
10. (a) Heaviest bag is 29kg 1
- B1 for 23kg is the upper quartile oe, or the heaviest bag is 29kg oe, or 25% of bags are heavier than 23kg or range is 5 – 29 oe*
- (b) 17 1
- B1 for 17 cao*

(c) $\frac{23 - 10}{13}$ 1

B1 for 13 cao

(d) $\frac{25}{100} \times 240$ 2

M1 for $\frac{25}{100} \times 240$ oe or $\frac{25}{100} \times 241$ oe

A1 for 60 cao

(SC: B1 for 25% or 0.25 or quarter seen)

[5]

11. 3

B3 for fully correct box plot

[-1 for each incorrect : median (37 to 38 inc.) or $28.5 < \text{lower quartile} < 30$ and upper quartile (43 to 44 inc.) or whiskers]

[3]



10 33 43 68 75

M1 for 33 and 68 marked

M1 for maximum mark at 75 and minimum mark at 10

A1 for completely correct box plot

[3]

13. correct boxplot 2

B2 fully correct boxplot

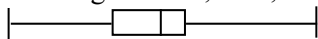
(B1 for any 2 features correct in a drawn box plot.

For example: correct whisker from 137 to 148 (as the lq of the box))

[2]

14. (a) 35 1

B1

- (b) $57 - 13$
44 1
- B1*
- [2]
15. (a) (i) 12 2
- B1 Accept $11 < \text{median} < 13$*
- (ii) 5
- B1 Accept $4 < LQ < 6$*
- (b) LQ at 5, M at 12, UQ at 18.5, end of whiskers at 0 and 32 3
- B1 for whiskers at 0, 32*
B1 for box ending at 5, 18.5 (or ft the 5 from (ai))
B1 for median at 12 (or ft from (ai))
NB: all the above to a tolerance of ± 1 full square
- [5]
16. (a) Markings at 1.38, 1.54, 1.63, 1.68, 1.81 3
- 
- B3 for fully correct box plot*
*(B2 for 3 correctly plotted values including box **and** tails)*
*(B1 for 2 correctly plotted values including box **or** tails or 5 correct values plotted and no box or tails)*
Watch for 1.63 given as upper quartile (No mark)
- (b) 2 differences 2
- B1 for comparison of a specific value*
e.g. Tallest boy is taller than the tallest girl; girls median greater than boys median
B1 for comparison of spread
e.g. the range of the boys heights is greater than the range of the girls heights;
interquartile range is the same
both boys and girls distribution have a negative skew
- [5]

17. 2 comparisons

2

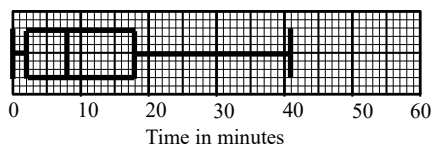
B1 for a comparison of a specific value, e.g. John's median is greater than Peter's median

B1 for a comparison of spread, e.g. John's range is wider than Peter's range

(watch out for two comparisons given together)

[2]

18. (a)



Box plot

2

B1 for ends of whiskers at 0 and 41 (with an appropriate box)

B1 for ends of box at 2 and 18 with median at 8

(b) 2 comparisons

2

B2 for two comparisons with at least one on spread

*(B1 for one comparison of spread
or one comparison of values)*

[4]

01. Paper 3

Responses to this question were centre-dependent. In part (a) candidates showed little understanding of the term “quartile”, often giving the lowest (132) and highest (182) number in the list. In part (b) it was very rare that any candidate demonstrated what a box & whisker diagram is. Most merely plotted the numbers as a series of points (crosses) across the bottom of the scale. Of those who did show some understanding, there were usually errors in their diagram, perhaps missing off the whiskers, or leaving the diagram as a series of vertical lines rather than a box; rarely was there any indication of the median. This is a topic which centres are advised to spend more time on in the future.

Paper 5

The response to this question on box plots was very mixed and tended to be very centre-based. In part (a) the most common wrong answers were 114.5 and 169.5. Although candidates were able to plot these values a significant minority did not draw the relevant (follow through) box. Those who drew the box frequently also drew the correct whiskers but some then failed to indicate the median or indicated its value at 157.

02. Mathematics A**Paper 3**

It was disappointing that less than half of the candidates estimated the median time correctly in part (a). Most candidates were able to draw a recognisable box plot in part (b) and many drew correct whiskers with the ends at 9 and 57. Candidates were much less successful, though, at finding the quartiles from the cumulative frequency graph and positioning the ends of the box at 16 and 45. Unfortunately, many of the comparisons given in part (c) only referred to the times of individuals (e.g. the fastest boy and the fastest girl) and did not make use of the median and spread to compare the distributions. Those who used the word 'median' often gave a correct interpretation.

Paper 5

This question on box plots was answered much better than the corresponding question last summer. Most grade B and above candidates correctly obtained an estimate for the median although some wrong reading of scales (30.2) was seen. Again in part (b) many gained at least partial credit (normally at least 2 out of 3) with a common wrong answer of plots at 10 and 60 for the ends of the whiskers. In part (c) the examiners were looking for two different comparisons between the times of boys and the times of girls rather than anything which related to single individuals. Most grade B and above candidates gained at least one of the two marks. Those who gained just one mark frequently gave 'two' comparisons which effectively were the same as illustrated by "the interquartile range of the boys' times is greater", "the girls' times are closer together".

Mathematics B Paper 16

Part (a) was answered correctly by 42% of the candidates.

The concept of box and whisker diagrams does now seem to be well known and understood by many, 78% gaining at least one mark, usually for the median. Many candidates confused the maximum and minimum values with the quartiles.

In part (c) very many candidates quoted exact figures from the box plots without any attempt at comparison between the boys and girls. Medians in "similar positions" or reference to means gained no marks.

- 03.** This was a successful question for later on in the paper. Surprisingly, though, over 40% candidates were unable to identify the correct modal class interval in part (a). More than half the candidates gained the mark for completing the table in part (b) and many went on to plot the points correctly at the ends of the intervals. The first point was occasionally plotted at (25, 48) but most candidates used the scale well. Some failed to join up the points. Part (d) was answered less well. Candidates had more success finding the median than the interquartile range but many did not know how to find either. Some confused the interquartile range with one of the quartiles. Part (e) was answered well, even by some of those who could not answer any other parts..of the question, and many candidates drew a correct box plot. When only one mark was gained this tended to be for a correct box and median. More errors were made with the whiskers. Some candidates misread the scale.

04. This question was very well understood by all candidates at this tier. 94% of candidates correctly worked out the cumulative frequency and 72% were able to draw the cumulative frequency graph correctly. 60% of candidates were able then to work out the median and interquartile range from their graphs. The box plot was very well answered with 85% of candidates getting both marks.

05. **Intermediate Tier**

There continues to be much evidence of box plots being misunderstood. Despite clear reference to maximum and minimum values in the question many candidates gave their end points incorrectly at 10 and 50. The box part of the plot was usually drawn without any evidence of readings being taken from the graph, and in many cases appeared to have been almost at random. In part (b) most candidates failed to link their description to the *distribution*, instead comparing differences in terms of individual aspects of the box plot. Those who chose to compare median, interquartile range or quartiles needed to say *how* they compared, not just state that they were different.

Higher Tier

The median was generally found correctly. There was some difficulty with the quartiles with the values being found from a misread cumulative frequency scale.

Many candidates had read the question carefully and located the correct upper and lower values. For part (b) many candidates made sensible attempts to answer the question, with those who focussed in on the natural comparison of the medians and then the interquartile ranges being most successful.

06. **Specification A**

Intermediate Tier

About half of the candidates gained at least one mark in this question. Those who made use of the marks on the vertical axis of each graph tended to be the most successful.

Higher Tier

Successful candidates drew straight lines from the cumulative frequency axis from each graph to find the position of the quartiles and the median. They were then able to match correctly each cumulative frequency diagram with the corresponding box plot.

Specification B

Intermediate Tier

Candidates needed at least two correct answers here to gain any marks. This usually thwarted those who were making arbitrary guesses. Many candidates used the diagrams well to estimate the positions of the median and the quartiles.

07. Paper 5523

Almost 60% of candidates correctly identified the median in part (a) but part (b) was answered less well. Many candidates gave the range or one of the quartiles instead of the interquartile range. Part (c) was poorly answered. Very few candidates realised that 25% of the trees would be above the upper quartile and many divided 300 by 17, by 10 or by 3.

Paper 5525

Parts (a) and (b) were done well by the majority of the candidates. A common incorrect answer in part (a) was 12, and in part (b) was $9 - 17$.

Part (c) was not done well. Few realised that they were required to work out 25% of 300.

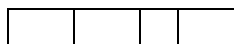
Common incorrect solutions were $\frac{300}{16} \times 3 = 56.25$, $\frac{300}{3} = 100$, $\frac{3}{20} \times 300 = 45$ and $15 \times 3 =$

45. Some calculated the position of the upper quartile by $\frac{3(300+1)}{4} = 225.75$ and then

subtracted this from 300 to get $= 74.25$.

08. Higher Tier

This question was generally done well. Most candidates knew how to draw a box plot, and most were able to do this with the required accuracy. A small minority of candidates drew boxes for the whiskers, i.e.

**Intermediate Tier**

Candidates who were familiar with box plots generally gained full marks, the exceptions usually occurring when one of the values was plotted incorrectly due to carelessness. Many candidates, however, appeared unfamiliar with box plots. Rectangular boxes with lines drawn at the given values, horizontal bar charts and, even, just five points at the given values, were common incorrect answers.

- 09.** In part (a), most candidates were able to draw a correct whisker on the box plot, but many either did not know how to draw the median or did not realise that the median was missing from the diagram and therefore needed to be included. A common mistake for some candidates was to draw more than one vertical line in the box plot. In part (b), most candidates were able to write down the value 10 for the lower quartile, but some, presumably dividing the scale into quarters, gave 15 (or 20) as this value.

10. Most answered this part (a) correctly. There were some who stated that 30kg was the heaviest bag. The majority of candidates were able to score marks in (b) and (c). However, part (d) was very poorly answered on the whole. Good candidates realised that those less than 10 represented the lower quartile as seen at the start of the question. They used the diagram given at the start of the question and either said $240/4 = 60$ or said $240/2 = 120$ which gives the median and then said $120/2 = 60$. Errors included $240/5 = 48$ the 5 being taken from 10-5. $\text{Range} = (29 - 5) = 24$ then $240/24$ is 10 and $10 \times 5 = 50$ the 5 being taken from 10-5 and $240/6 = 40$.
11. Success, or not, at this question was centre-dependant, many able candidates clearly having not been prepared for this topic. There was evidence of quartiles and the median being accurately found on the cf graph without the knowledge to go further. Of those who understood the concept, most gained 1 mark for drawing the whiskers. Many times the quartiles were read from 60 and 140. Often boxes were drawn without an indication of the median.
12. This question successfully tested the candidates' understanding of a box plot; it was clear that many candidates knew what a box plot should look like but were unable to use the information given to draw their box plot correctly. Some candidates tried to draw a (very small) cumulative frequency diagram. Successful candidates understood how to use the range together with the minimum to obtain the maximum mark scored as well as how to use the lower quartile with the interquartile range to obtain the upper quartile.
13. Those candidates who showed an understanding of a box plot scored at least one, and usually two, marks. Sadly nearly 40% gained no marks, showing no understanding at all. Many boxes were drawn with the least and greatest heights at the ends of the box with the remaining information inside. This gained one mark if fully labelled.
14. In part (a) many candidates identified the correct median; however an answer of 30 was very common. In part (b), 20 (40 - 20), 57 - 13 and 13 to 57 were the usual mistakes made.
15. The median appeared relatively easy for the candidates to read off, but a significant minority failed to understand what was meant by a "quartile". Box plots remain misunderstood by many candidates. Incomplete boxes and failure to show any whiskers were the main errors. A failure to read off the upper quartile accurately was also an issue for some. Many candidates forgot what went where, and linked up boxes with medians, sometimes maximum points, or missed out the line for the median.

16. In part (a) there were some very well presented box plots, which had been accurately drawn to indicate clearly the important features. Full marks were obtained by 56% of candidates. In some instances confusion arose over the median value as this was sometimes given incorrectly as the upper quartile. The fact that a box plot had been drawn for the boys' heights on the question paper was obviously a help in guiding the weaker candidates into drawing the correct structure for a box plot.

For part (b) a comparison was required and again there were 23% of fully correct answers and 44% gained 1 mark. However, there were some who simply wrote down a series of values that offered no comparison but merely gave numerical values. The most successful responses were those that made a straightforward statement highlighting the differences in the median value and referring to the spread of heights by reference to the range being greater for boys or the fact that the inter-quartile ranges were the same. Specific mathematical terms were required rather than generalisations such as "girls are/were taller overall than the boys" and offering no justification for this. A few mentioned the skewness of the distributions.

17. The majority of candidates were able to score at least one mark for this question; usually for comparing point values such as the lowest prices, the highest prices and the medians. Comparison of the ranges was more popular than the comparison of the interquartile ranges.

A significant number of candidates gave two comparisons of ranges or two comparisons of point values. Unacceptable 'comparisons' typically involved vague statements such as "the median in John's garage is £7200 and the median in Peter's garage is £6400" and "the cars in John's garage are more expensive than the cars in Peter's garage".

18. Nearly all candidates managed to draw the box plot accurately in part (a) taking care to position their lines and box very precisely. The second box plot in the question had been drawn in and provided sufficient guidance as to what was required thus enabling many to gain full marks in part (a).

Part (b) appeared to be more challenging as many struggled to form a comparison between the two box plots. Firstly it was encouraging to see that many candidates successfully avoided simply listing the various components of the box plots without making a comparison. To simply say that 'the highest value on Saturday is 45 and on Friday is 41' does not compare the two values it merely states the values. The statement 'the longest delay on Saturday is greater than the longest delay on Friday' affords a comparison between the two. Most responses picked out a value for a comparison and scored 1 mark with some continuing to make a valid fact about range or interquartile range to secure the second mark. The alternative approach was to make a comparison between the ranges and between the interquartile ranges on each day and this would have scored both marks. It was not unusual to see a description relating to 'airports' in general with 'bad weather' or 'airports are busier at weekends' being in the top two.

Unfortunately neither fact can be picked up from the information given in this question, nor could any facts about the amount of planes that were delayed. Some candidates clearly did not read the question carefully, assuming that only the second box plot was Peter's or indeed, that the days included Sunday. Nearly two thirds of the candidates scored at least 3 marks for this question.