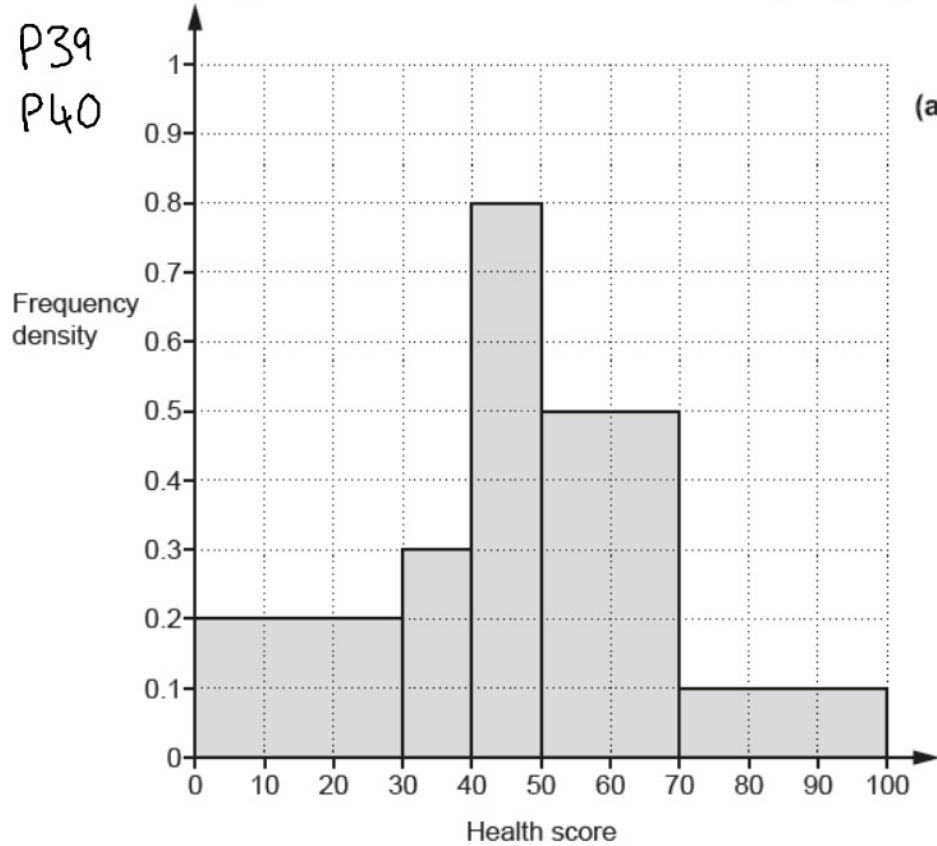


# P37- Comparing Data- Bosplots and CF Graphs

OCR

10 The histogram summarises a health score for a group of people.

P39  
P40



(a) Estimate the fraction of the group who had a score of 45 or more.

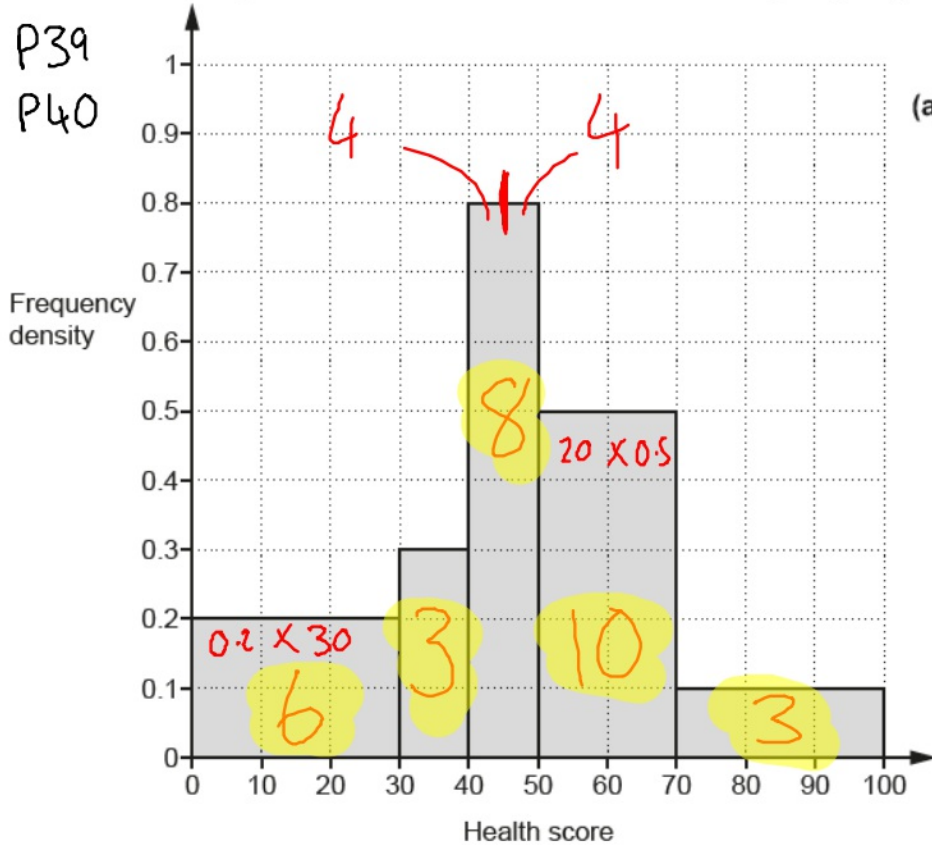
(a) ..... [4]

(b) What assumption did you make in answering part (a)?

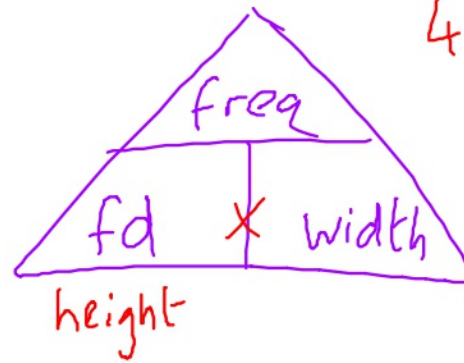
.....  
..... [1]

10 The histogram summarises a health score for a group of people.

P39  
P40



(a) Estimate the fraction of the group who had a score of 45 or more.



$$4 + 10 + 3 = 17$$

$$\frac{17}{30}$$

(a) ..... [4]

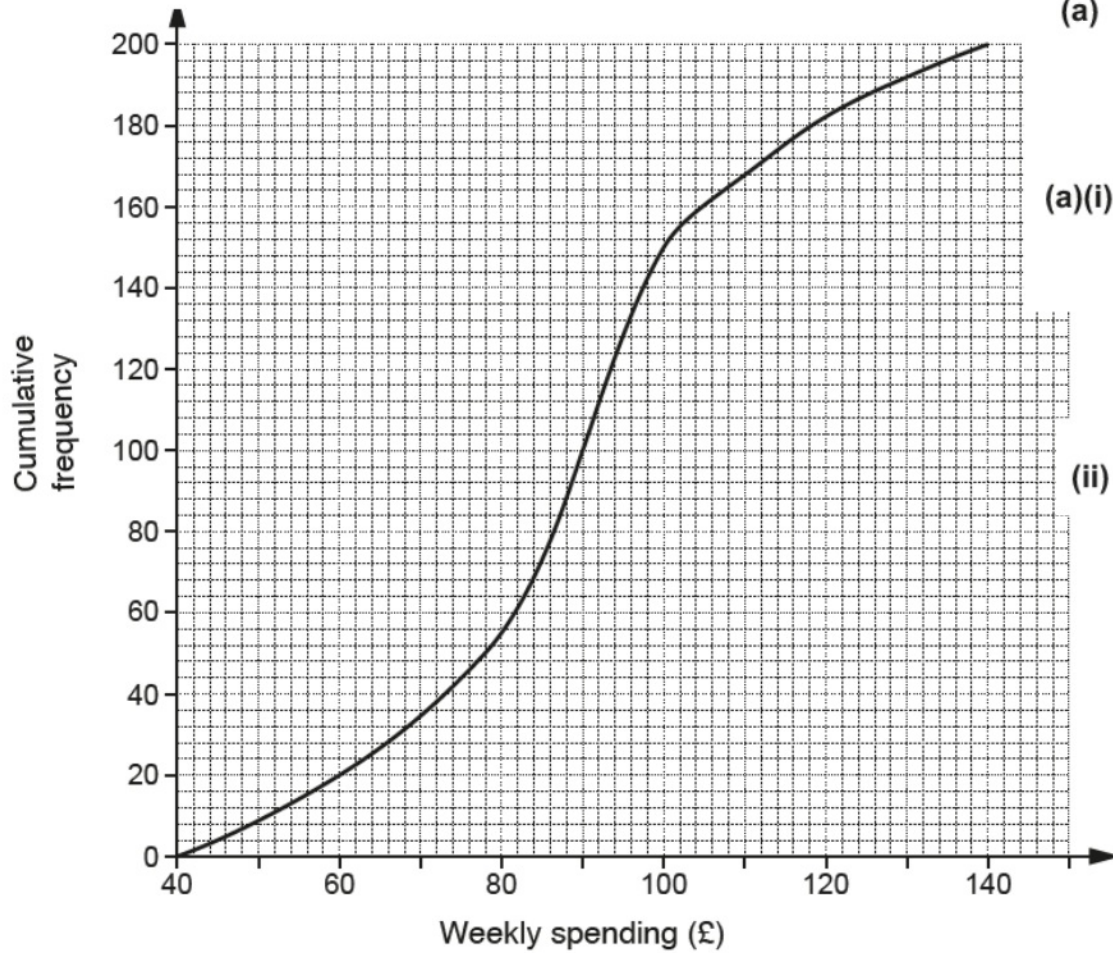
(b) What assumption did you make in answering part (a)?

Assume group 40-50 is evenly spread

..... [1]

15 Iqrah carries out a survey of 200 families in the **north** of England on their weekly spending on food.

P35 The cumulative frequency diagram summarises the results.



(a) Find

(i) the median,

(a)(i) £ ..... [1]

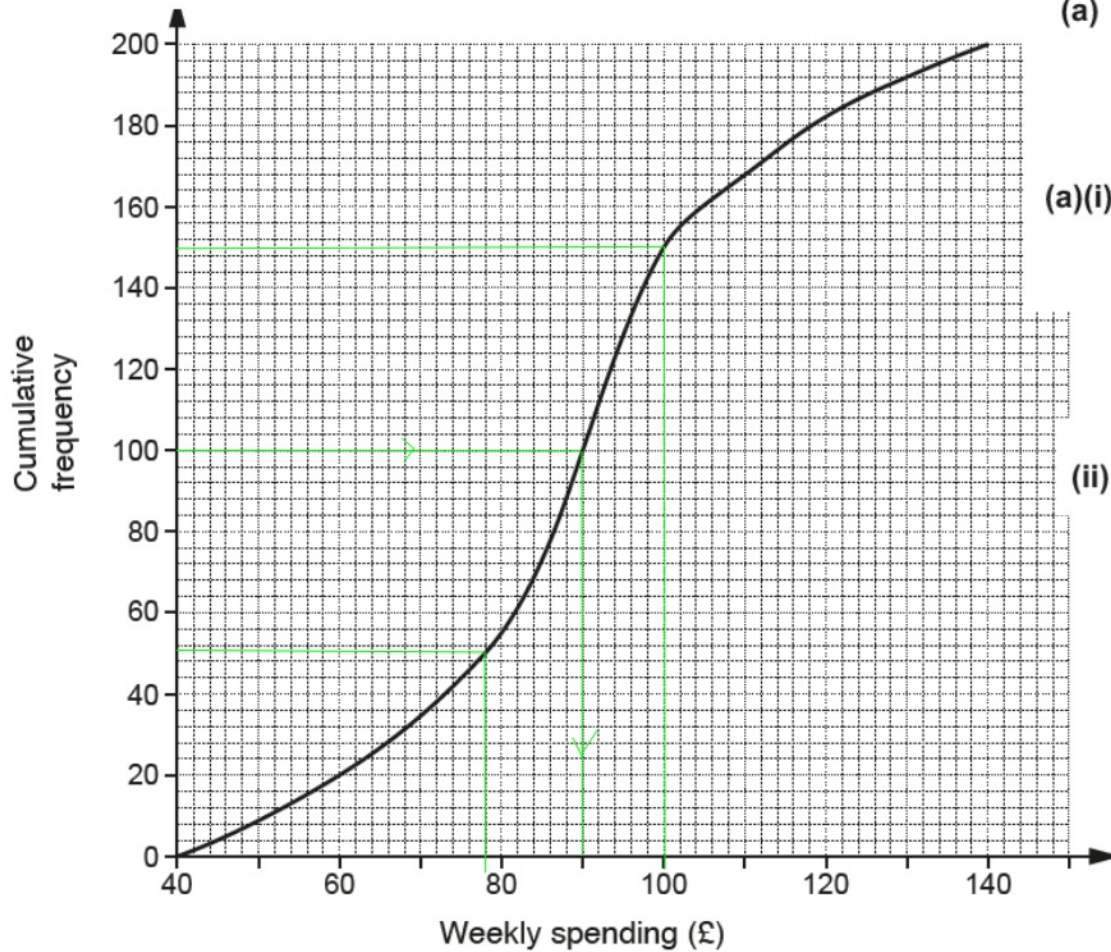
(ii) the interquartile range.

(ii) £ ..... [2]

15 Iqrah carries out a survey of 200 families in the **north** of England on their weekly spending on food.

Created by W Neill

P35 The cumulative frequency diagram summarises the results.



(a) Find

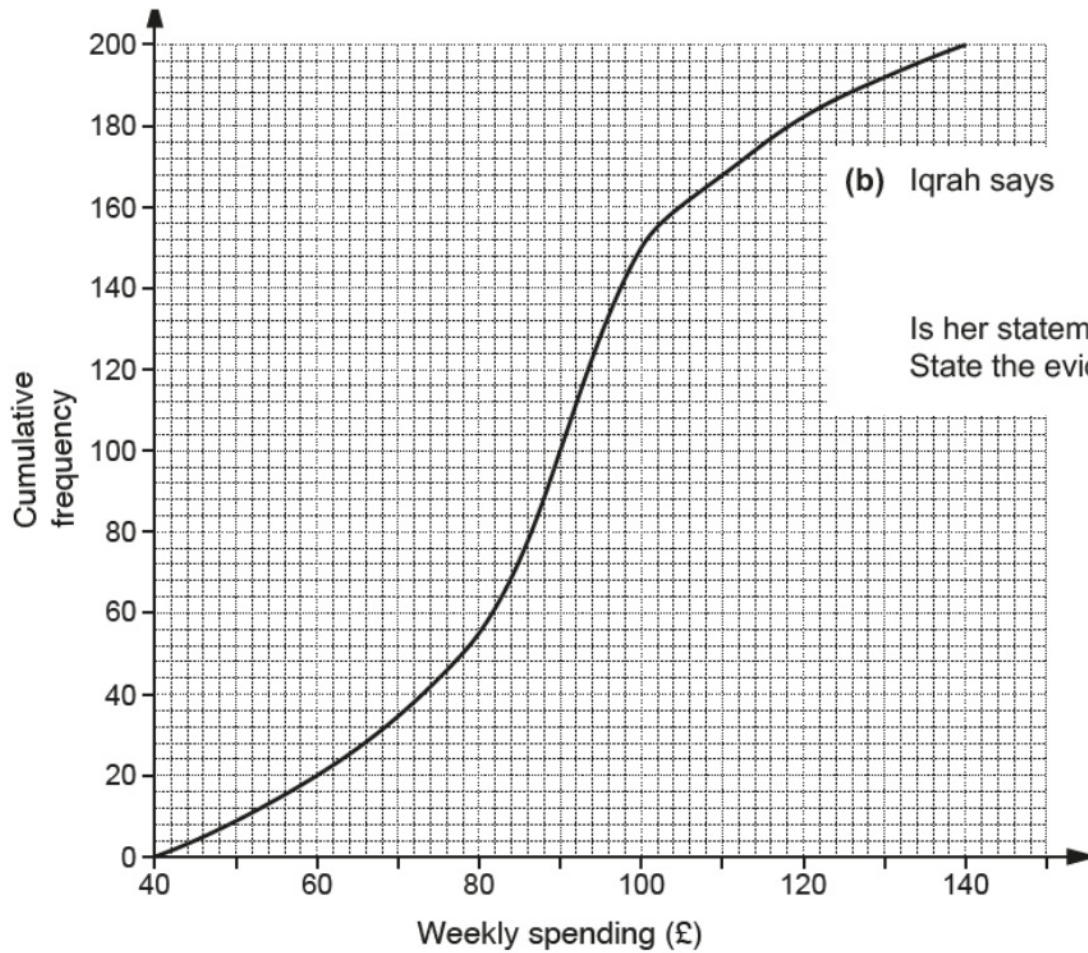
(i) the median,

(a)(i) £ 90 ..... [1]

(ii) the interquartile range.

UQ - LQ £100 - £78

(ii) £ 22 ..... [2]



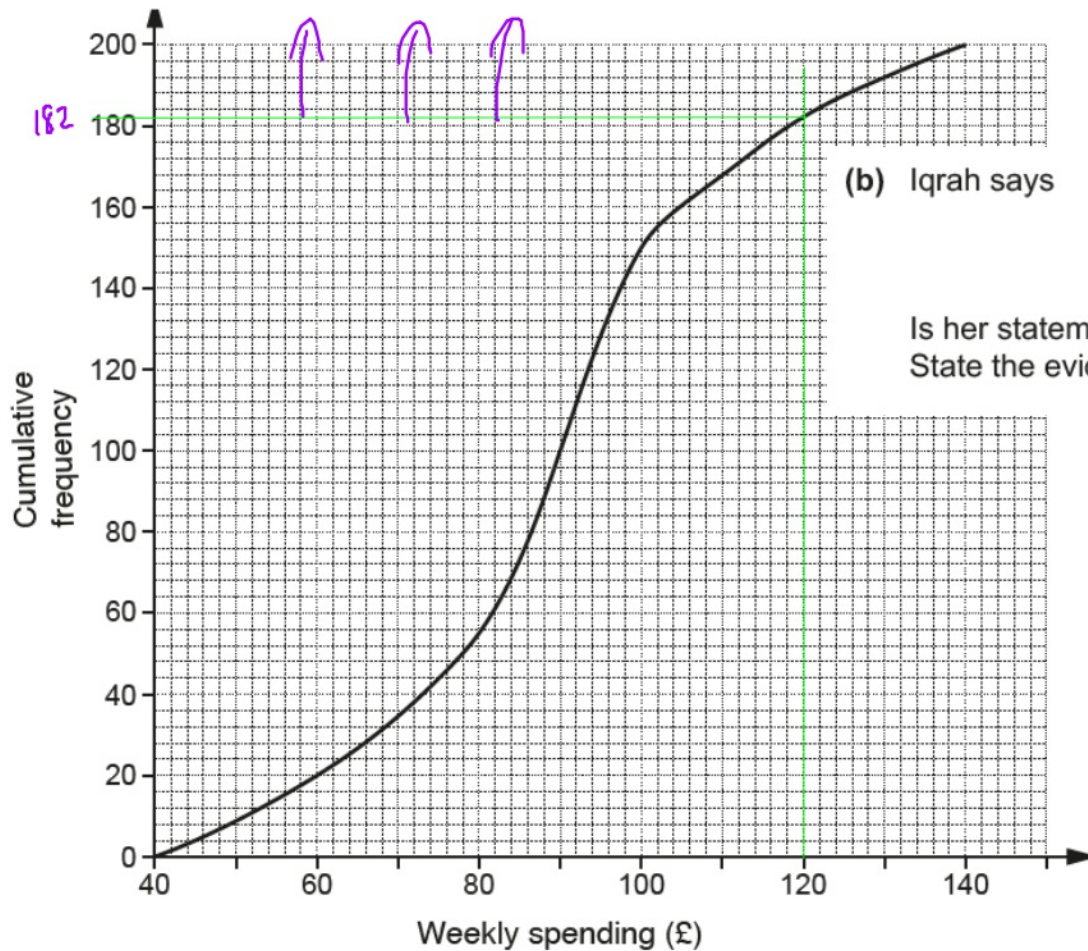
(b) Iqrah says

15% of these families spent over £120.

Is her statement correct?

State the evidence you have used in making your decision.

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15% of these families spent over £120.

Is her statement correct?

State the evidence you have used in making your decision.

15% of 200 families

= 10% = 20

5% = 10

30 families

18 families on graph spent more than £120 so no, statement not correct.



P37 (c) In a survey of 200 families in the **south** of England, the median weekly amount spent on food was £84 and the interquartile range was £28.

Make two comparisons between the weekly amounts spent on food in the north of England and the south of England.  
State the evidence you have used in making your comparisons.

1 .....  
..... [2]

2 .....  
..... [2]

(c) In a survey of 200 families in the **south** of England, the median weekly amount spent on food was £84 and the interquartile range was £28.

P37

£90

£22 ... North

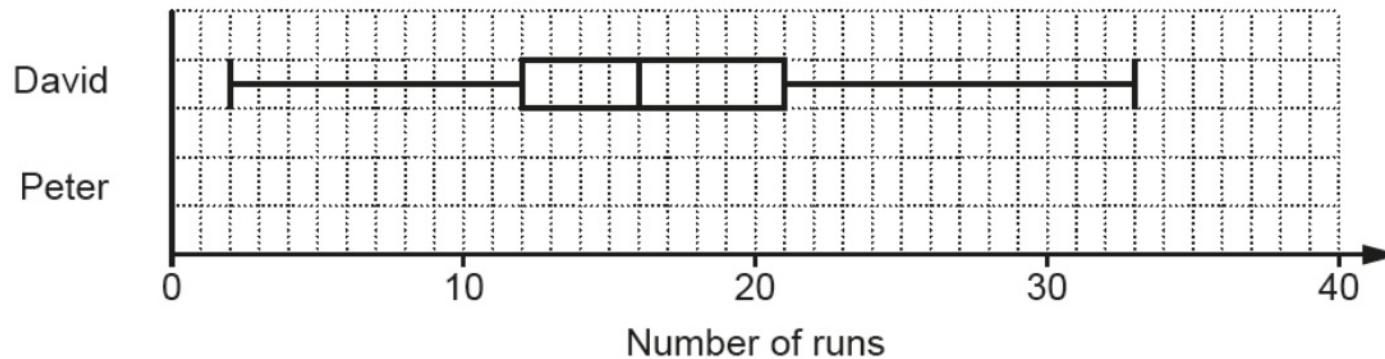
Make two comparisons between the weekly amounts spent on food in the north of England and the south of England.

State the evidence you have used in making your comparisons.

1 Median in north was higher  $90 > 84$  ... so on average people in north spent more. [2]

2 IQR ... In south IQR is greater ...  $£28 > £22$  so south's spending is more spread out. [2]

15 The box plot shows the distribution of the runs scored by David in some cricket matches.



(a) Another player, Peter, has

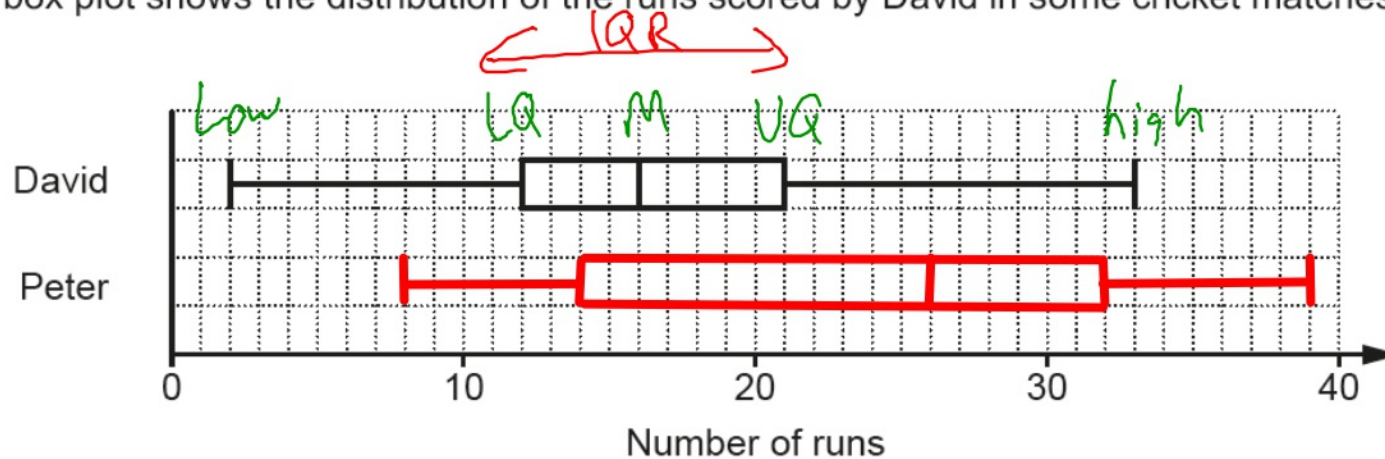
P36

- a median score of 26
- a highest score of 39
- a lowest score of 8
- a lower quartile of 14
- an inter-quartile range of 18.

Show the distribution of Peter's scores as a box plot on the diagram above.

[2]

15 The box plot shows the distribution of the runs scored by David in some cricket matches.



(a) Another player, Peter, has

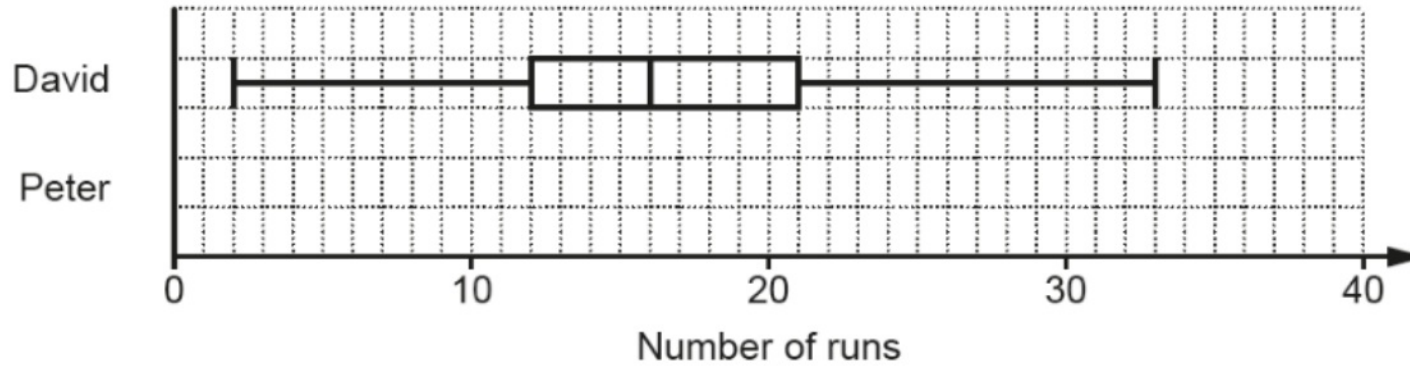
P36

- a median score of 26
- a highest score of 39
- a lowest score of 8
- a lower quartile of 14
- an inter-quartile range of 18.

$$14 + 18 = 32$$

Show the distribution of Peter's scores as a box plot on the diagram above.

[2]



(b) Decide whether David or Peter best satisfies each of these questions. Give a reason for each of your decisions.

P37

(i) Who scored more runs on average?

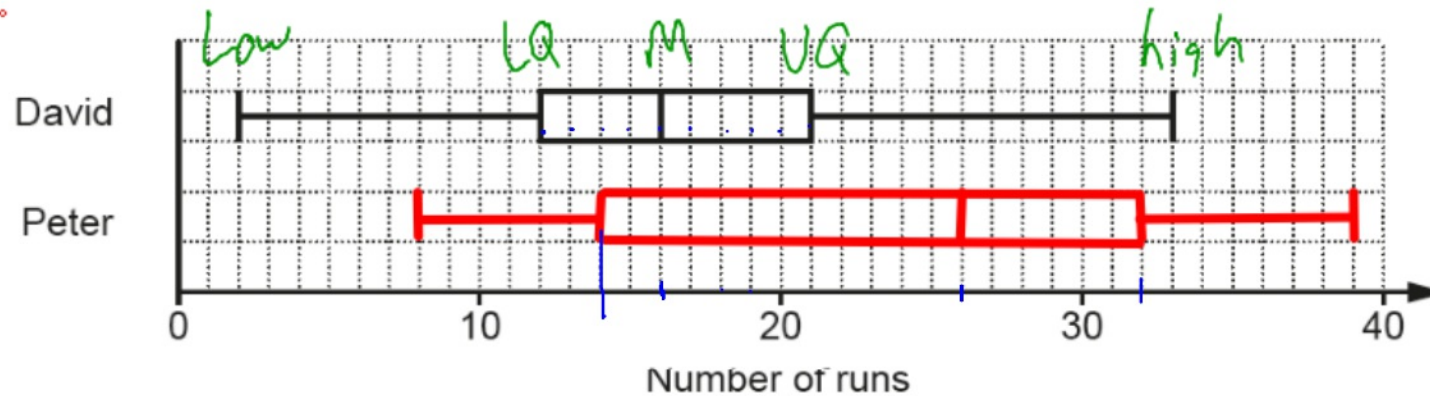
..... because .....

..... [1]

(ii) Whose scores were more consistent?

..... because .....

..... [1]



- (b) Decide whether David or Peter best satisfies each of these questions. Give a reason for each of your decisions.

P37

- (i) Who scored more runs on average?

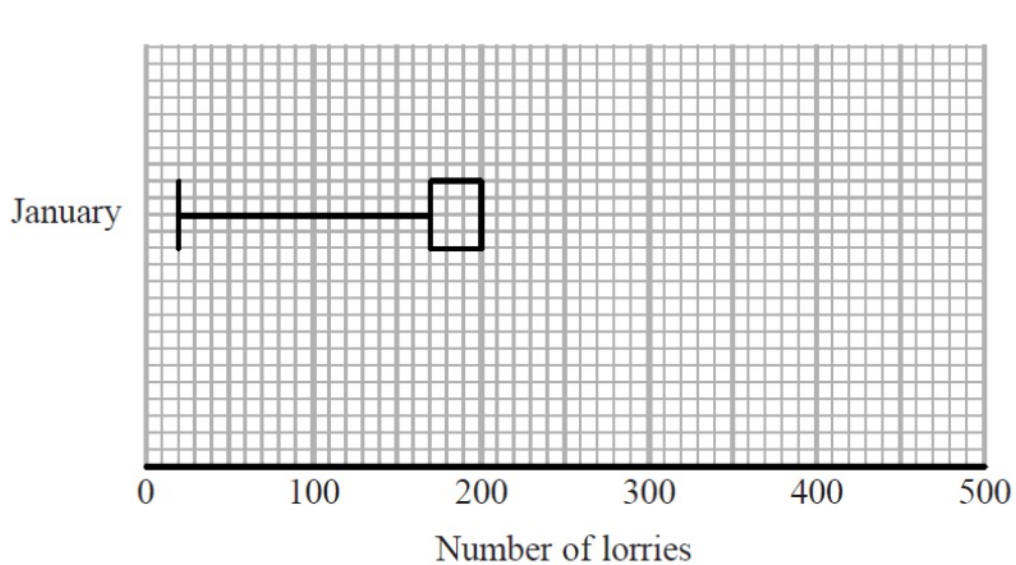
Peter because he has a higher median ✓  
 $26 > 16$  [1]

- (ii) Whose scores were more consistent?

David because his IQR is smaller ✓  
 $9 < 18$  ✓ [1]

Edexcel

- 11 The incomplete table and the incomplete box plot give information about the number of lorries using a bridge each day last January.



	Number of lorries
Least number	
Lower quartile	
Median	
Upper quartile	280
Greatest number	405

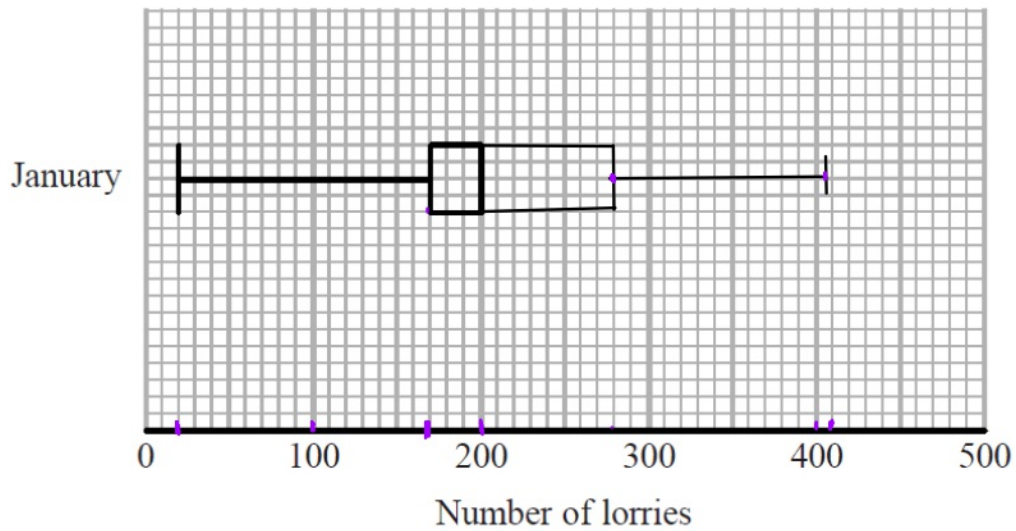
- (a) (i) Use the information in the table to complete the box plot.  
 (ii) Use the information in the box plot to complete the table.

P36

(2)



- 11 The incomplete table and the incomplete box plot give information about the number of lorries using a bridge each day last January.



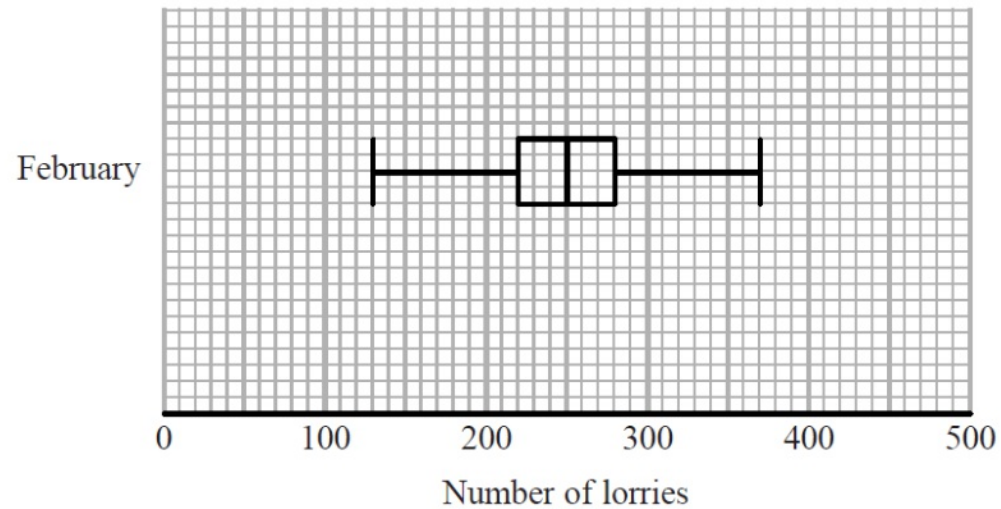
	Number of lorries
Least number	20
Lower quartile	170
Median	200
Upper quartile	280
Greatest number	405

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

P36

(2)

The box plot below gives information about the number of lorries using the bridge each day last February.

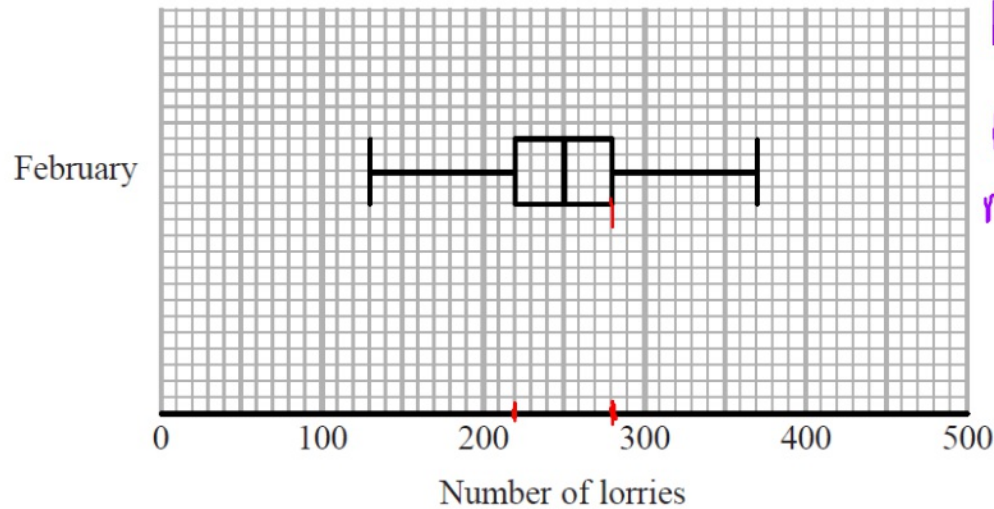


(b) Compare the distribution of the number of lorries using the bridge last January and the distribution of the number of lorries using the bridge last February.

(2)

P37

The box plot below gives information about the number of lorries using the bridge each day last February.



Med Jan = 200  
 Median Feb = 250  
 more lorries passed bridge in Feb.

(b) Compare the distribution of the number of lorries using the bridge last January and the distribution of the number of lorries using the bridge last February.

(2)

P37 IQR Jan =  $280 - 170 = 110$  No. of lorries passing in  
 UQ - LQ Feb =  $280 - 220 = 60$  Jan is more spread out.

9 The times that 48 trains left a station on Monday were recorded.

Video Created by W Neill

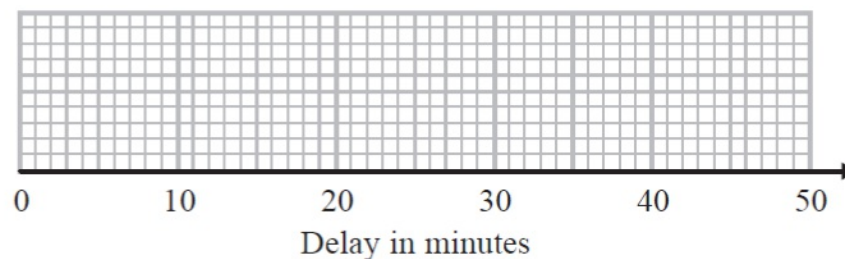
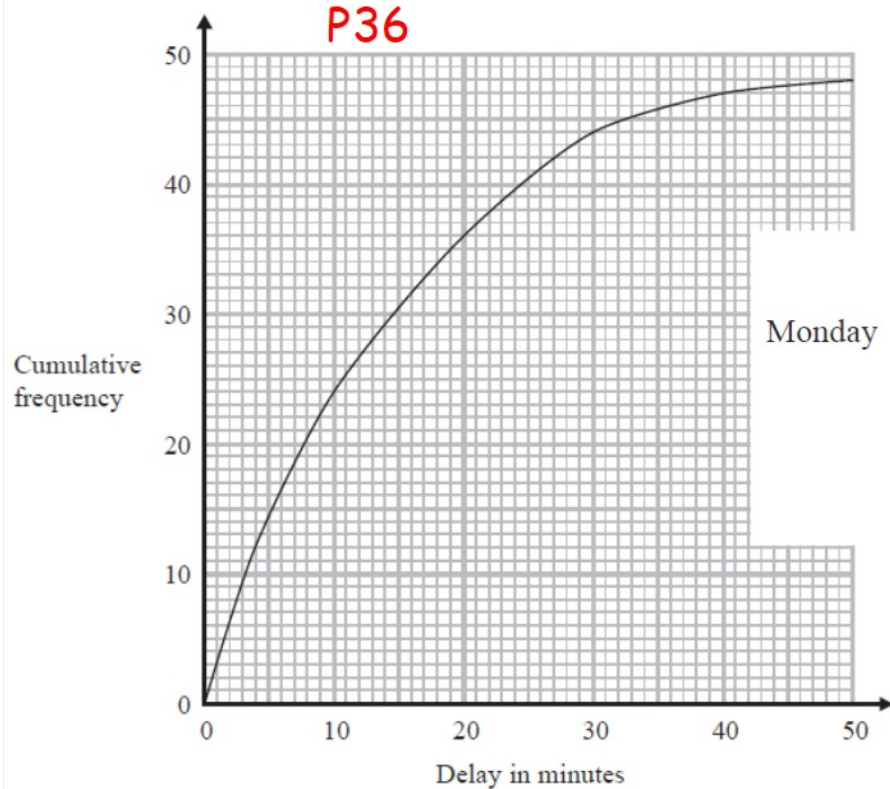
The cumulative frequency graph gives information about the numbers of minutes the trains were delayed, correct to the nearest minute.

(a) On the grid below, draw a box plot for the information about the delays on Monday.

P35

P36

The shortest delay was 0 minutes.  
The longest delay was 42 minutes.



(3)

9 The times that 48 trains left a station on Monday were recorded.

Video Created by W Neill

The cumulative frequency graph gives information about the numbers of minutes the trains were delayed, correct to the nearest minute.

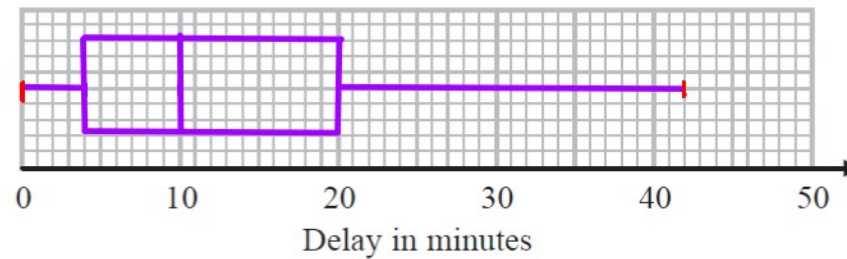
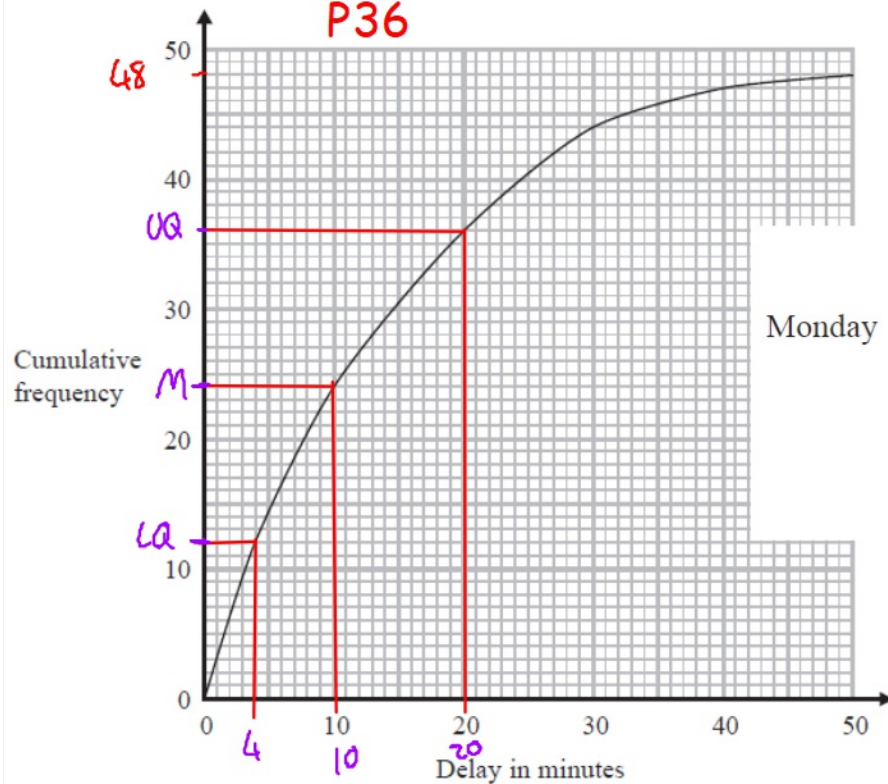
(a) On the grid below, draw a box plot for the information about the delays on Monday.

P35

P36

The shortest delay was 0 minutes.

The longest delay was 42 minutes.

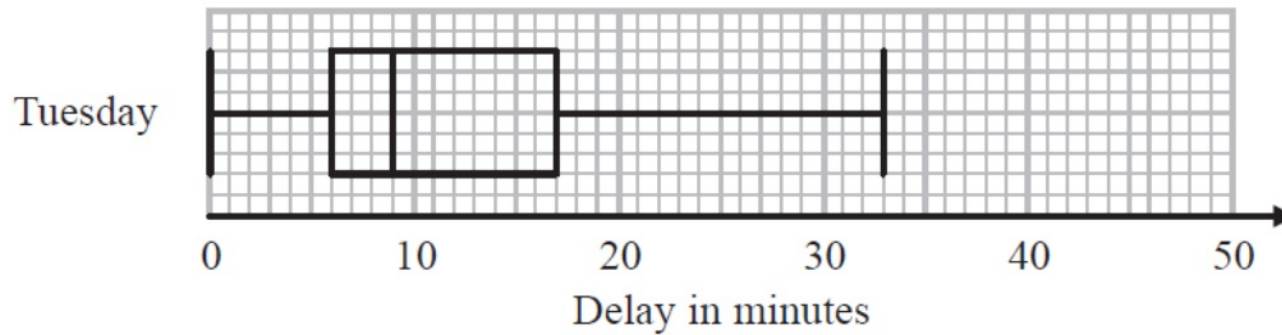


(3)

48 trains left the station on Tuesday.

Video Created by W Neill

The box plot below gives information about the delays on Tuesday.



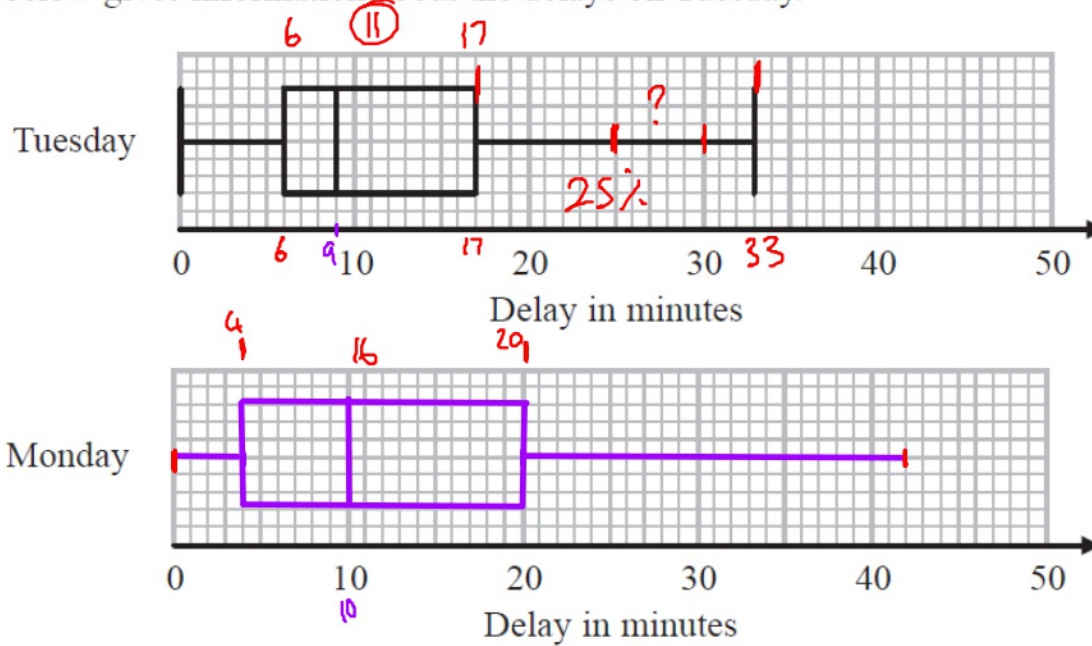
(b) Compare the distribution of the delays on Monday with the distribution of the delays on Tuesday.

P37

(2)

48 trains left the station on Tuesday.  
The box plot below gives information about the delays on Tuesday.

Video Created by W Neill



On Mon the IQR is 16 min and on Tuesday the IQR is 11 min, therefore train delays are more spread out on Monday.

(b) Compare the distribution of the delays on Monday with the distribution of the delays on Tuesday.

P37

Median was 9 min on Tues and 10 min on Monday. Therefore we can say trains were later on Monday.

(2)

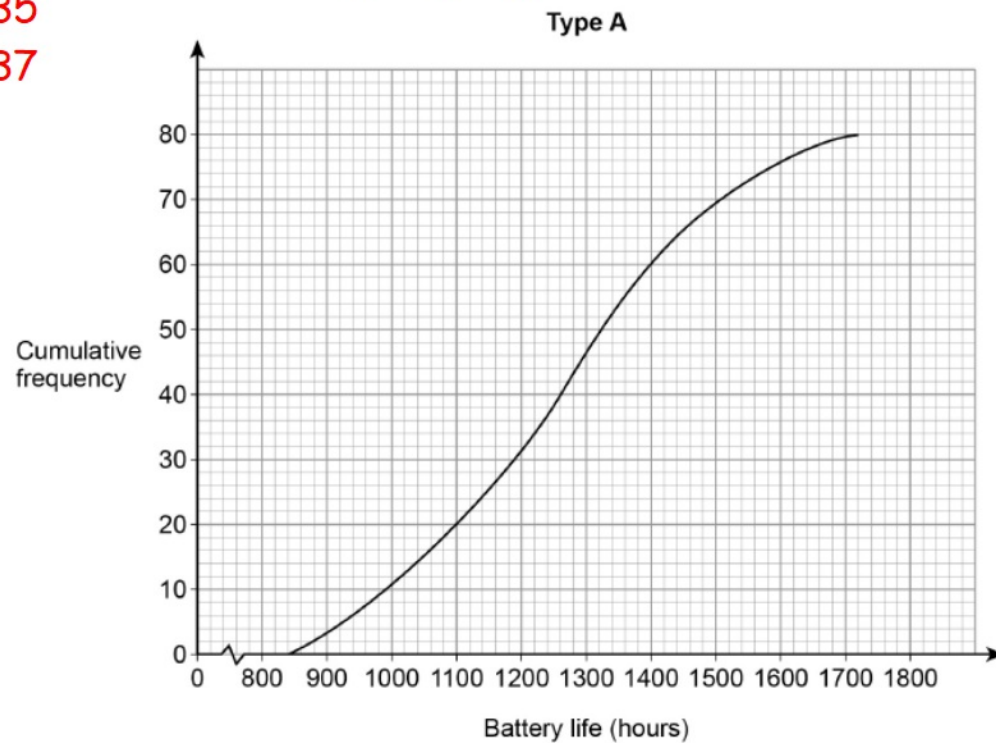
AQA



19 Type A batteries and type B batteries were tested.

The cumulative frequency diagram shows information about the battery life of type A.

P35  
P37



19 (a) Estimate the interquartile range for type A. [2 marks]

P35

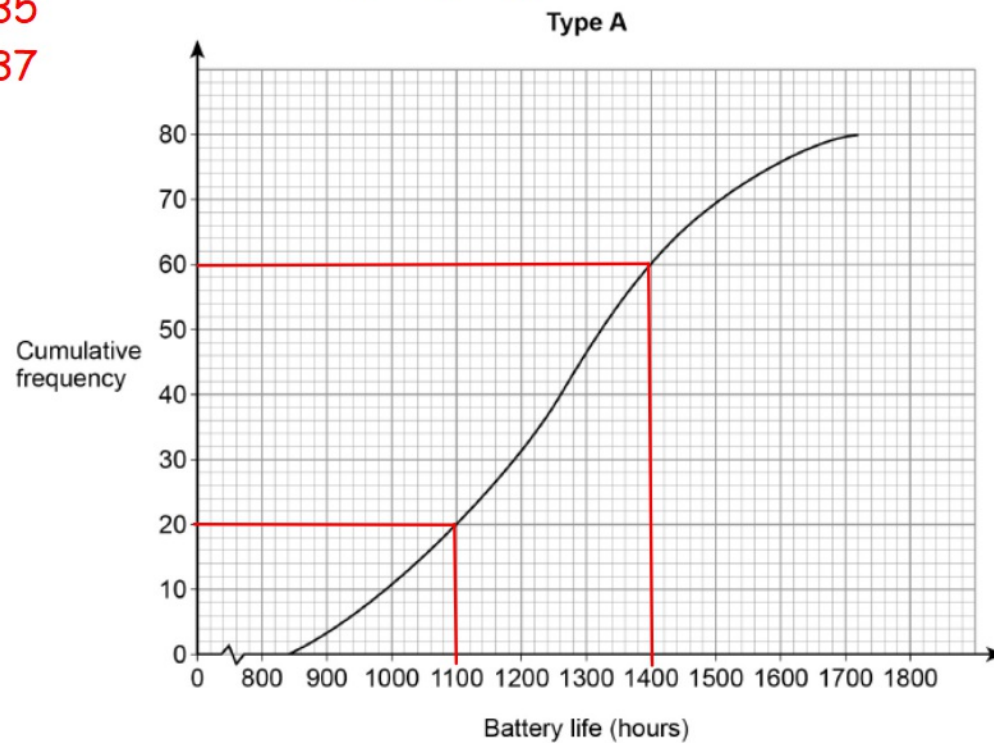
Answer \_\_\_\_\_ hours

19 Type A batteries and type B batteries were tested.

The cumulative frequency diagram shows information about the battery life of type A.

P35

P37



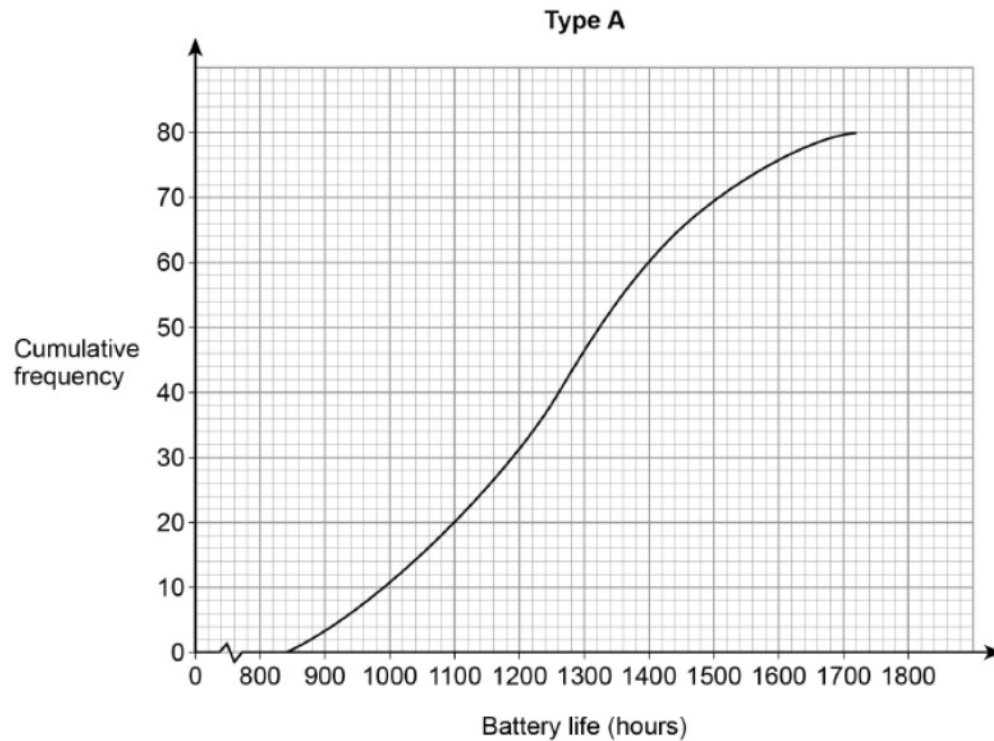
UQ - LQ  
1400 - 1100

19 (a) Estimate the interquartile range for type A. [2 marks]

P35

Answer 300 ✓ hours

- 19 Type A batteries and type B batteries were tested.  
The cumulative frequency diagram shows information about the battery life of type A.

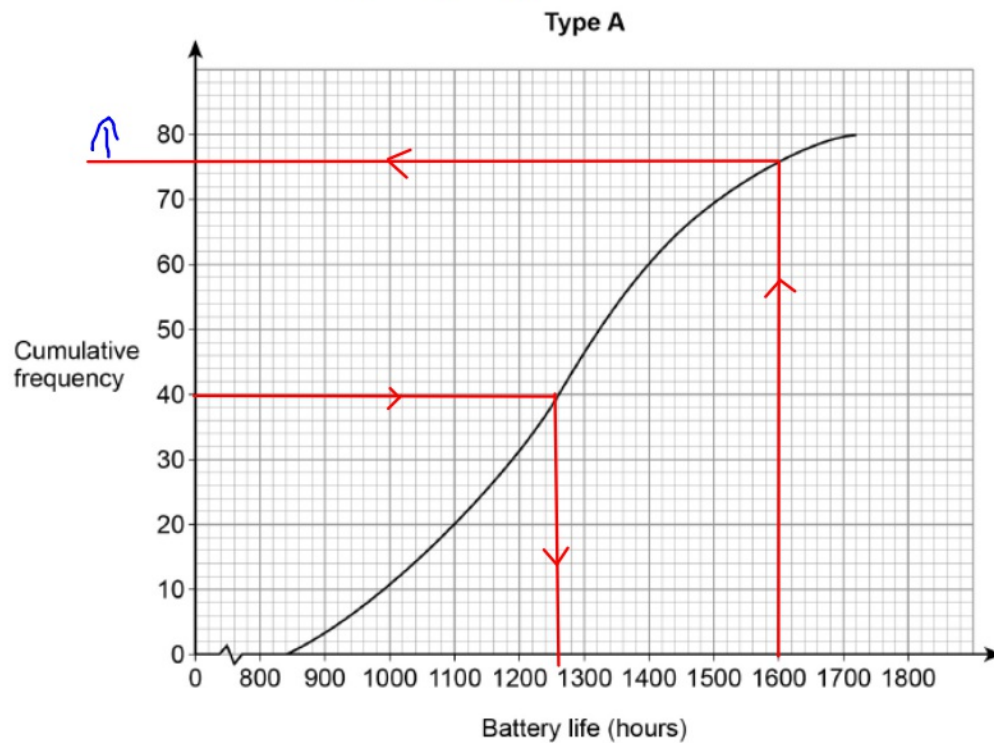


- 19 (b) Estimate the number of type A batteries that had a battery life of more than 1600 hours. [1 mark]

P35

Answer \_\_\_\_\_ hours

- 19 Type A batteries and type B batteries were tested.  
The cumulative frequency diagram shows information about the battery life of type A.



- 19 (b) Estimate the number of type A batteries that had a battery life of more than 1600 hours. [1 mark]

P35

Answer \_\_\_\_\_

4

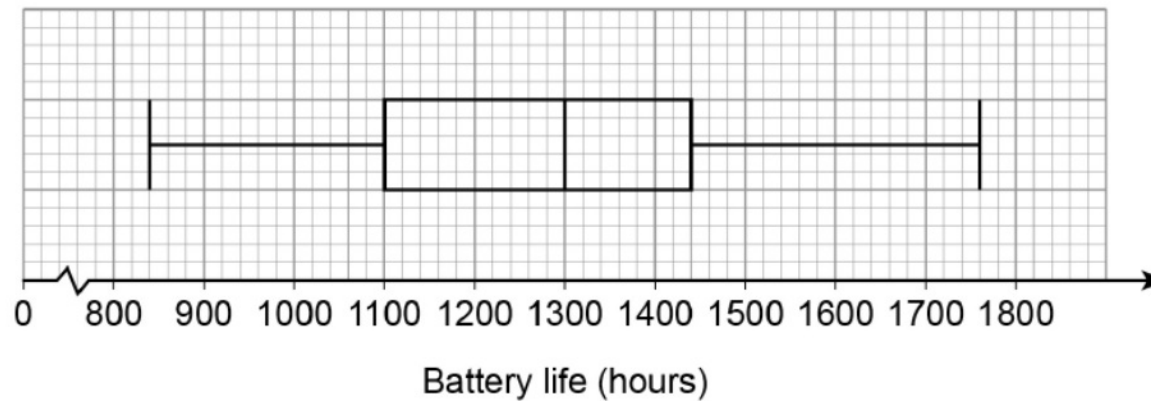
~~16~~

19 (c) The box plot shows information about the battery life of type B.

Video created by W Neill

P37

Type B



On average, which type had the greater battery life?

Tick a box.

type A

type B

Using data from **both** diagrams, state how you chose your answer.

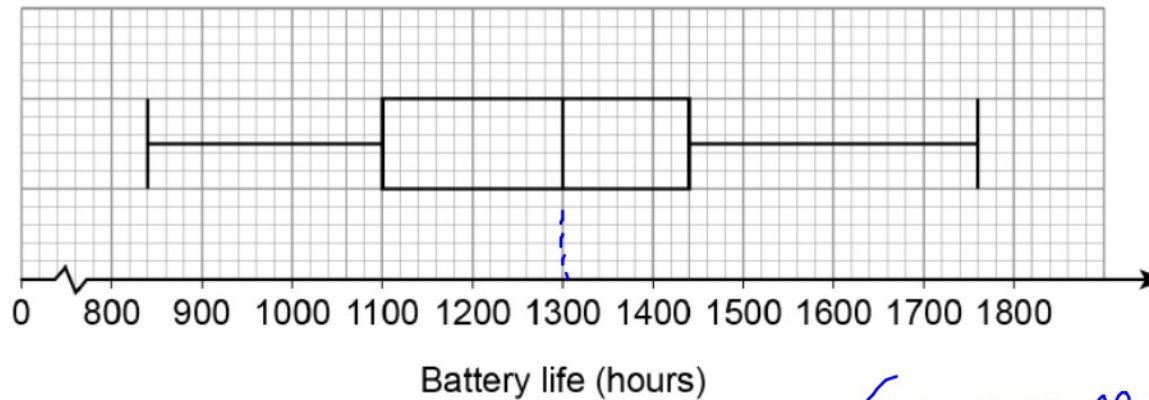
[2 marks]

19 (c) The box plot shows information about the battery life of type B.

Video created by W Neill

P37

Type B



On average, which type had the greater battery life?

Tick a box.

type A

type B

Using data from **both** diagrams, state how you chose your answer.

Compare Medians

Type B median = 1300hrs  
Type A " = 1260hrs

As type B median > Type A

[2 marks]

the battery life is longer.

15

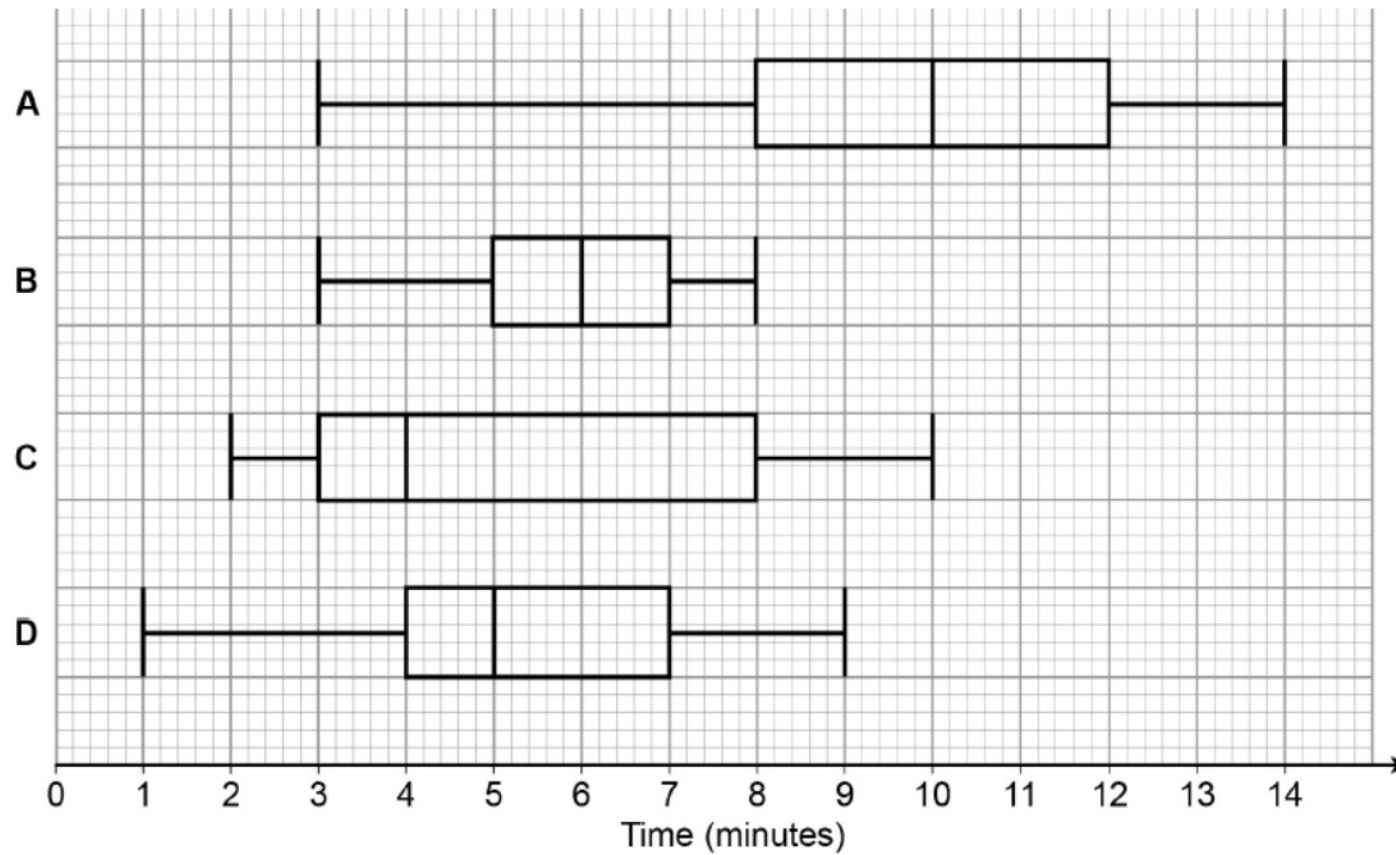
In a survey, queuing times at supermarket checkouts were recorded.

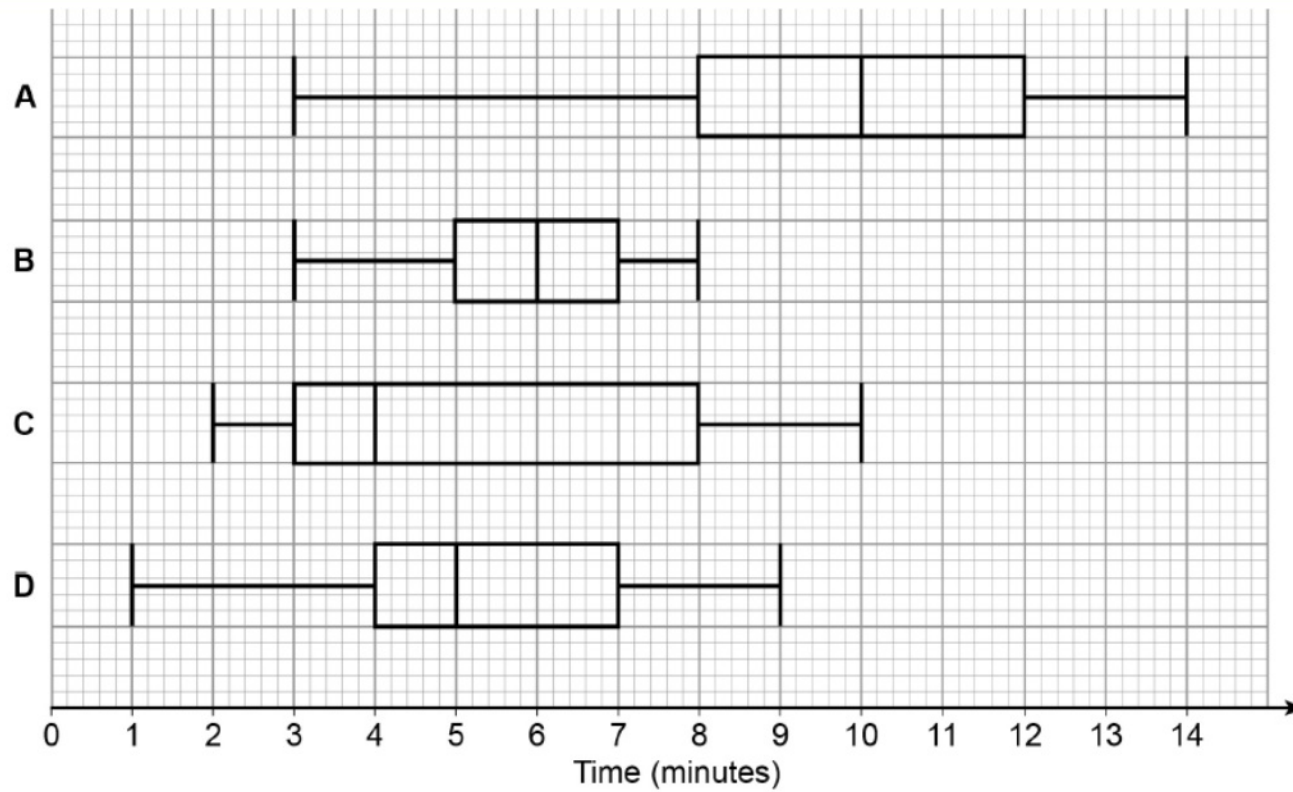
One morning, samples of 50 customers were taken at supermarkets A, B, C and D.

P36

The box plots represent the results.

P37





**15 (a)** On average, which supermarket had the lowest queuing times?

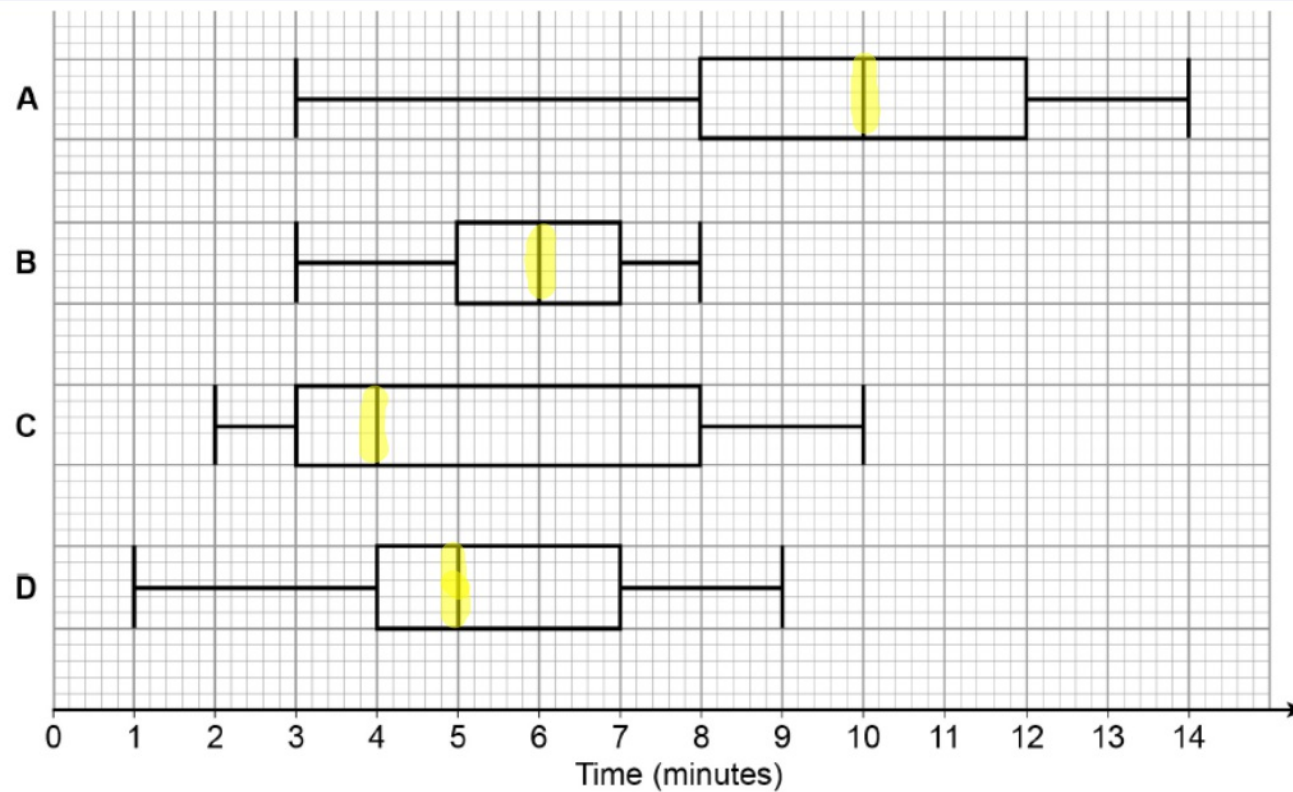
Give a reason for your answer.

**[2 marks]**

Supermarket \_\_\_\_\_

Reason \_\_\_\_\_





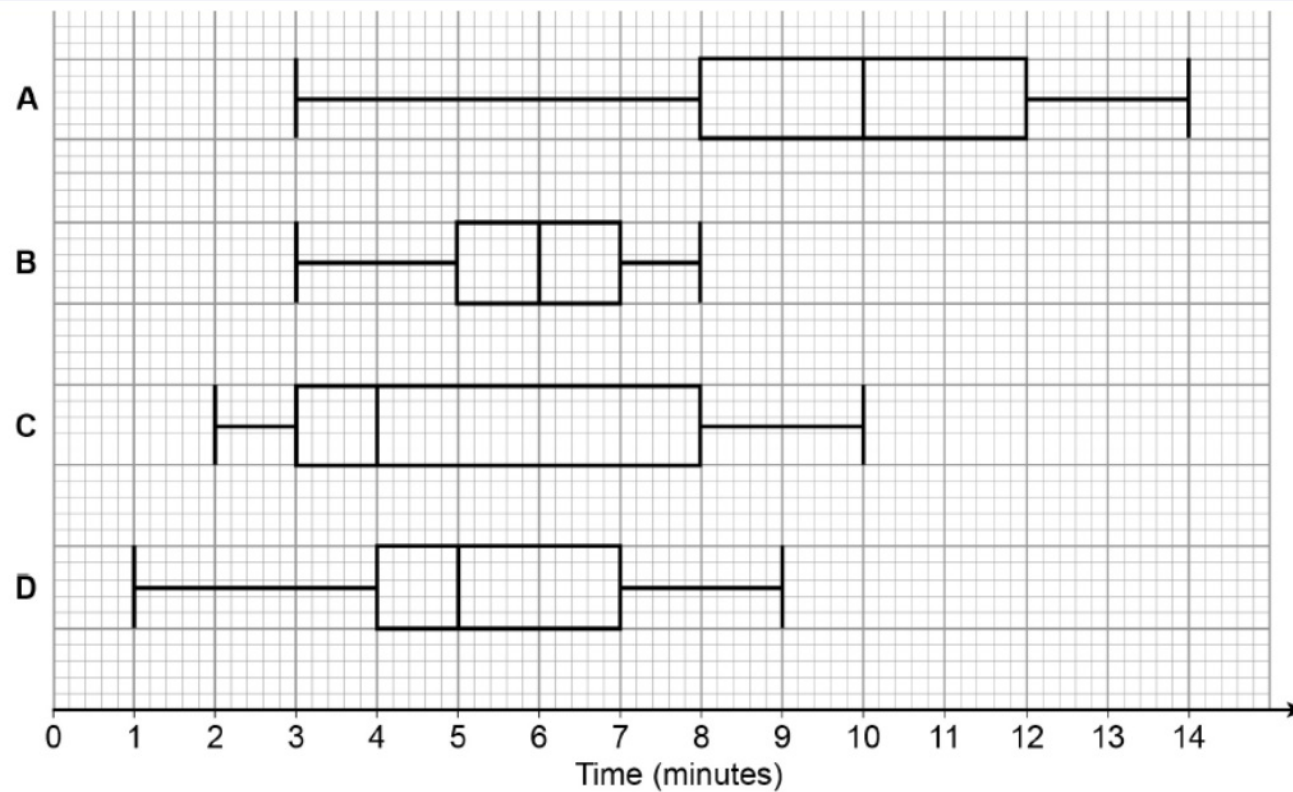
15 (a) On average, which supermarket had the lowest queuing times?

Give a reason for your answer.

[2 marks]

Supermarket C

Reason Lowest median time at 4 min ✓



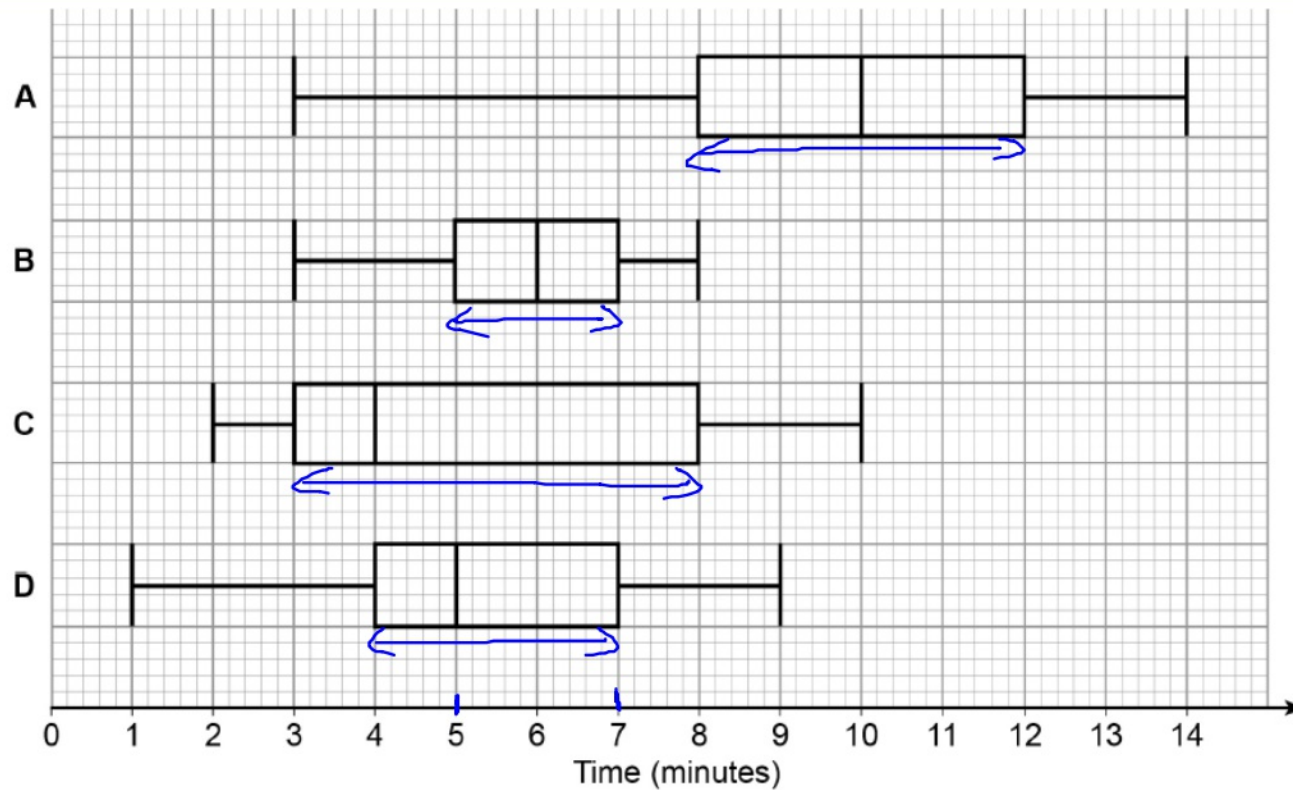
**15 (b)** At which supermarket were the queuing times most consistent?

Give a reason for your answer.

**[2 marks]**

Supermarket \_\_\_\_\_

Reason \_\_\_\_\_



15 (b) At which supermarket were the queuing times most consistent?

Give a reason for your answer.

[2 marks]

Supermarket B

Reason Smallest IQR of 2min ✓