AVERAGES FROM FREQUENCY TABLES

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Foundation Tier

1.

16 The table gives information about the number of points scored by each of 16 students in a game.

Number of points	Frequency
0	1
1	3
2	5
3	4
4	3

Tina worked out the median of the number of points scored to be 5

(a) Explain why it is **not** possible for the median to be 5

.....

.....

.....

(1)

Tina also worked out the total number of points scored by the 16 students in the game.
Here is her working.

$$(0 \times 1) + (1 \times 3) + (2 \times 5) + (3 \times 4) + (4 \times 3) = 1 + 3 + 10 + 12 + 12 = 38$$

Tina made a mistake in her working to find the total number of points scored.

(b) Describe the mistake that Tina made.

.....

.....

.....

(1)

(Total for Question 16 is 2 marks)

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Foundation Tier

2.

18 The table shows information about the numbers of points scored by 30 students in a quiz.

Number of points	Frequency
0	4
1	3
2	7
3	5
4	6
5	5

(a) Find the modal number of points.

.....

(1)

(b) Work out the total number of points scored.

.....

(2)

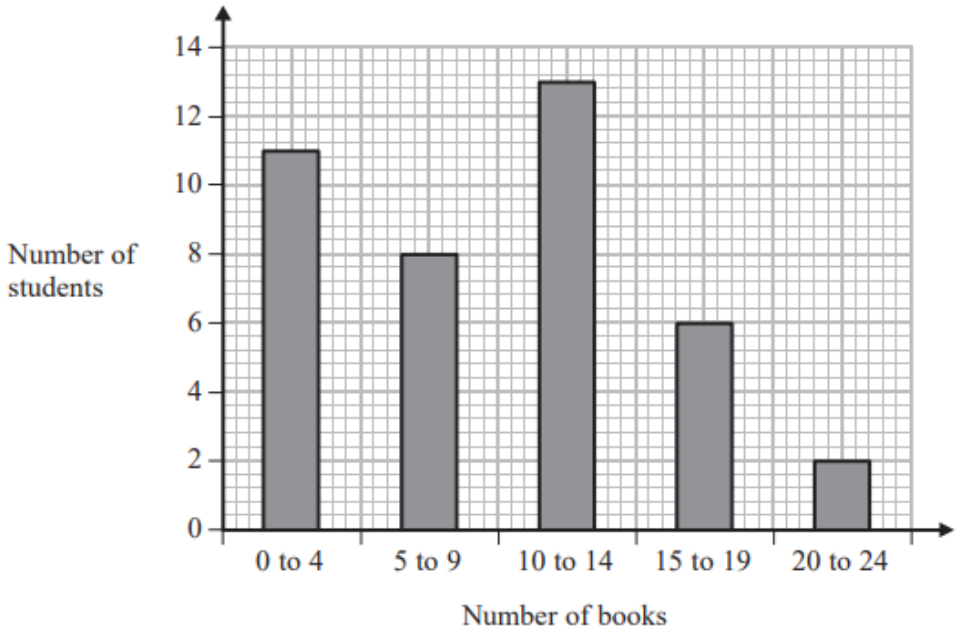
(Total for Question 18 is 3 marks)

Pearson Edexcel - Monday 12 November 2018 - Paper 3 (Calculator) Foundation Tier

3.

23 Fran asks each of 40 students how many books they bought last year.

The chart below shows information about the number of books bought by each of the 40 students.



(a) Work out the percentage of these students who bought 20 or more books.

.....%

(2)

(b) Show that an estimate for the mean number of books bought is 9.5
You must show all your working.

(4)

(Total for Question 23 is 6 marks)

Pearson Edexcel - Thursday 7 June 2018 - Paper 2 (Calculator) Foundation Tier

4.

16 Marla buys some bags of buttons.

There are 19 buttons or 20 buttons or 21 buttons or 22 buttons in each bag.

The table gives some information about the number of buttons in each bag.

Number of buttons	Frequency
19	.....
20	7
21	3
22	1

The total number of buttons is 320

Complete the table.

(Total for Question 16 is 3 marks)

Pearson Edexcel - Thursday 2 November 2017 - Paper 1 (Non-Calculator) Foundation Tier

5.

27 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leqslant 250$	1
$250 < x \leqslant 350$	11
$350 < x \leqslant 450$	5
$450 < x \leqslant 550$	0
$550 < x \leqslant 650$	3

(a) Work out an estimate for the mean of the weekly earnings.

£.....

(3)

Nadiya says,

"The mean may **not** be the best average to use to represent this information."

(b) Do you agree with Nadiya?
You must justify your answer.

.....

.....

(1)

(Total for Question 27 is 4 marks)

Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Foundation Tier

6.

19 The table shows information about the heights of 80 children.

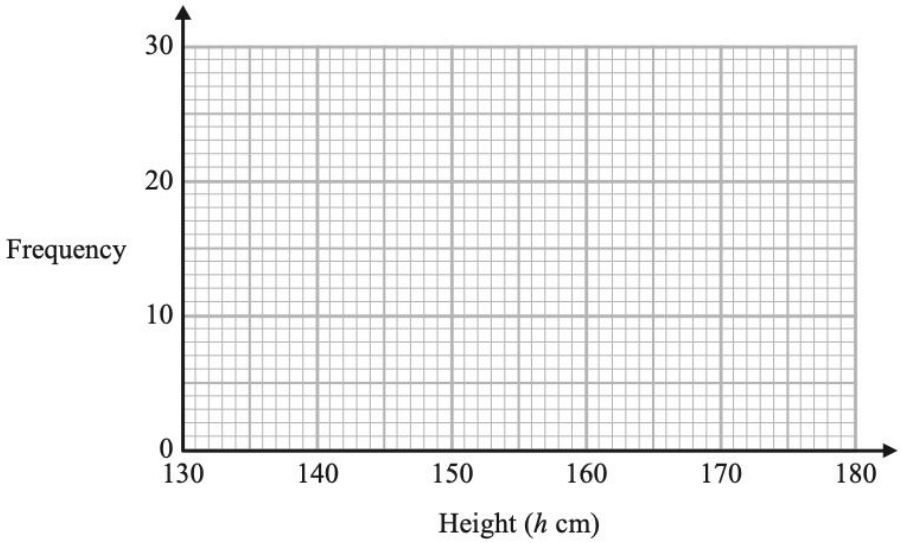
Height (h cm)	Frequency
$130 < h \leqslant 140$	4
$140 < h \leqslant 150$	11
$150 < h \leqslant 160$	24
$160 < h \leqslant 170$	22
$170 < h \leqslant 180$	19

(a) Find the class interval that contains the median.

.....

(1)

(b) Draw a frequency polygon for the information in the table.



(2)

(Total for Question 19 is 3 marks)

Pearson Edexcel – Specimen 2 - Paper 1 (Non-Calculator) Foundation Tier

7.

15 The table shows information about the ages of all the people at a party.

Age (years)	Frequency
11 – 20	6
21 – 30	16
31 – 40	10
41 – 50	8

(a) Work out the total number of these people who were aged 40 or less.

.....

(1)

Andy says that the range of ages is 39 years because 50 – 11 = 39

(b) The range may not be 39 years.
Explain why.

.....

.....

.....

(1)

(Total for Question 15 is 2 marks)

Pearson Edexcel – Specimen 2 - Paper 2 (Calculator) Foundation Tier

8.

8 Rachel carried out a survey of 10 people to find out the type of fruit they like best.

The table gives information about her results.

Type of fruit	Number of people
apple	2
banana	5
orange	3

(a) Which type of fruit is the mode?

.....

(1)

In Rachel's survey, 2 out of 10 people like apples best.

(b) Write 2 out of 10 as a percentage.

.....%

(1)

Pete also carried out a survey to find out the type of fruit people like best.
He asked 30 people which type of fruit they like best.

He drew this pie chart for his results.

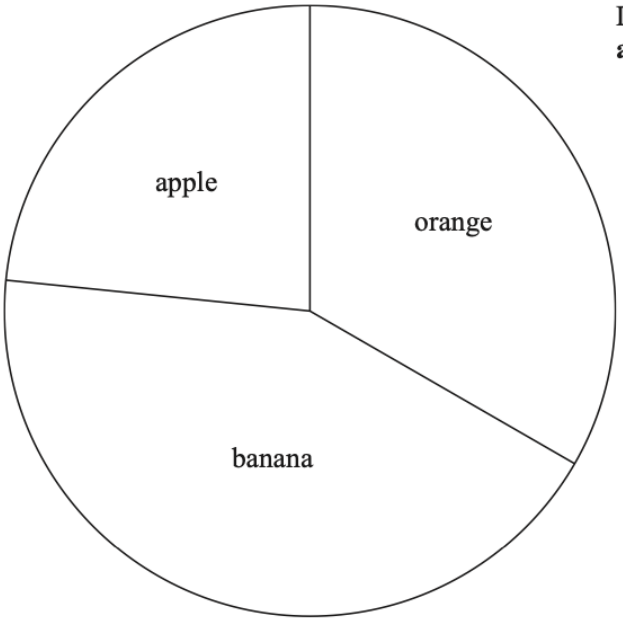


Diagram **accurately** drawn

A smaller proportion of people like bananas best in Pete's survey than in Rachel's survey.

(c) Explain how Pete's pie chart and Rachel's table show this.

.....

.....

.....

(2)

(Total for Question 8 is 4 marks)

Pearson Edexcel – Specimen 2 - Paper 3 (Calculator) Foundation Tier

9.

16 Ross rolled an ordinary dice 30 times.

The frequency table gives information about his results.

Score	Frequency
1	7
2	5
3	4
4	4
5	6
6	4

Ross worked out the mean score as 8

(a) Explain why it is impossible for the mean score to be 8

.....

.....

(1)

Graham also worked out the mean score.

Here is his working.

$1 \times 7 + 2 \times 5 + 3 \times 4 + 4 \times 4 + 5 \times 6 + 6 \times 4 = 99$

$99 \div 6 = 16.5$

The mean score is 16.5

(b) Describe the mistake Graham made in his method to work out the mean score.

.....

.....

(1)

(Total for Question 16 is 2 marks)

Pearson Edexcel – Specimen 1 - Paper 2 (Calculator) Foundation Tier

10.

23 The grouped frequency table gives information about the heights of 30 students.

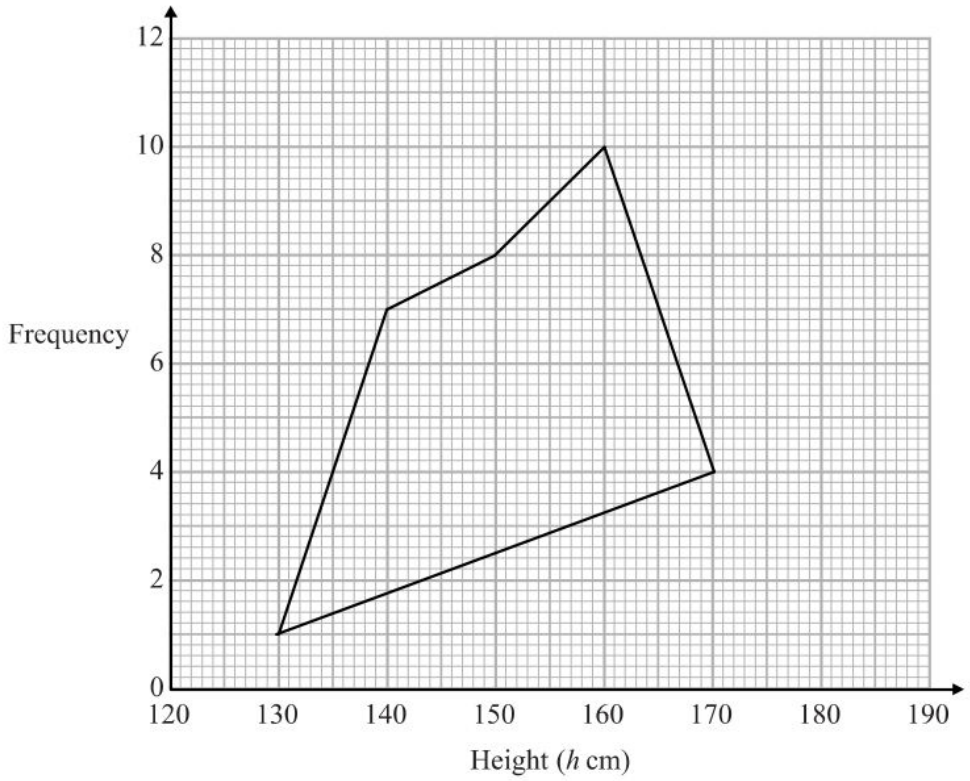
Height (h cm)	Frequency
$130 < h \leqslant 140$	1
$140 < h \leqslant 150$	7
$150 < h \leqslant 160$	8
$160 < h \leqslant 170$	10
$170 < h \leqslant 180$	4

(a) Write down the modal class interval.

.....

(1)

This incorrect frequency polygon has been drawn for the information in the table.



(b) Write down two things wrong with this incorrect frequency polygon.

1 .....

2 .....

(2)

(Total for Question 23 is 3 marks)

Pearson Edexcel – Specimen 1 - Paper 3 (Calculator) Foundation Tier

11.

24 Jenny works in a shop that sells belts.

The table shows information about the waist sizes of 50 customers who bought belts from the shop in May.

Belt size	Waist (w inches)	Frequency
Small	$28 < w \leqslant 32$	24
Medium	$32 < w \leqslant 36$	12
Large	$36 < w \leqslant 40$	8
Extra Large	$40 < w \leqslant 44$	6

(a) Calculate an estimate for the mean waist size.

..... inches

(3)

Belts are made in sizes Small, Medium, Large and Extra Large.

Jenny needs to order more belts in June.
The modal size of belts sold is Small.

Jenny is going to order $\frac{3}{4}$ of the belts in size Small.

The manager of the shop tells Jenny she should **not** order so many Small belts.

(b) Who is correct, Jenny or the manager?
You must give a reason for your answer.

.....

.....

(2)

(Total for Question 24 is 5 marks)

OCR Tuesday 21 May 2019 – Morning (Calculator) Foundation Tier

12.

20 Luke is an office receptionist.
Each day, for 60 days, he records the number of people visiting the office.

Number of people, (n)	Frequency		
$0 \leqslant n \leqslant 5$	20		
$5 < n \leqslant 10$	14		
$10 < n \leqslant 20$	11		
$20 < n \leqslant 40$	15		

(a) Calculate an estimate of the mean number of people visiting the office.

(a) ..... **[4]**

(b) Luke says the range is 40.

Explain why he may be wrong.

.....

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

OCR Monday 24 May 2018 – Morning (Calculator) Foundation Tier

13.

18 The table below shows the weight, w kg, of the bags that people took on a plane.

Weight of bag (kg)	Frequency		
$0 < w \leqslant 10$	16		
$10 < w \leqslant 15$	10		
$15 < w \leqslant 20$	20		
$20 < w \leqslant 25$	8		
$25 < w \leqslant 30$	6		

Calculate an estimate of the mean weight of the 60 bags.

..... kg **[4]**

14.

27 There are 1200 students at a school.

Kate is helping to organise a party.
She is going to order pizza.

Kate takes a sample of 60 of the students at the school.
She asks each student to tell her **one** type of pizza they want.

The table shows information about her results.

Pizza	Number of students
ham	20
salami	15
vegetarian	8
margarita	17

Work out how much ham pizza Kate should order.
Write down any assumption you make **and** explain how this could affect your answer.

(Total for Question 27 is 3 marks)

Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier

15.

27 The table shows some information about the foot lengths of 40 adults.

Foot length (f cm)	Number of adults
$16 \leqslant f < 18$	3
$18 \leqslant f < 20$	6
$20 \leqslant f < 22$	10
$22 \leqslant f < 24$	12
$24 \leqslant f < 26$	9

(a) Write down the modal class interval.

.....

(1)

(b) Calculate an estimate for the mean foot length.

..... cm

(3)

(Total for Question 27 is 4 marks)

OCR Wednesday 8 November 2017– Morning (Calculator) Foundation Tier

16.

14 A shop records the time taken by its customers to complete a purchase on its website.
The results from one day are summarised in this table.

Time taken (t minutes)	Number of customers		
$0 < t \leqslant 3$	6		
$3 < t \leqslant 6$	10		
$6 < t \leqslant 9$	6		
$9 < t \leqslant 12$	2		
$12 < t \leqslant 15$	1		

(a) Calculate an estimate of the mean time taken.

(a) ..... minutes **[4]**

(b) Explain why it is not possible to use the information from this table to calculate the **exact** value of the mean time taken.

.....

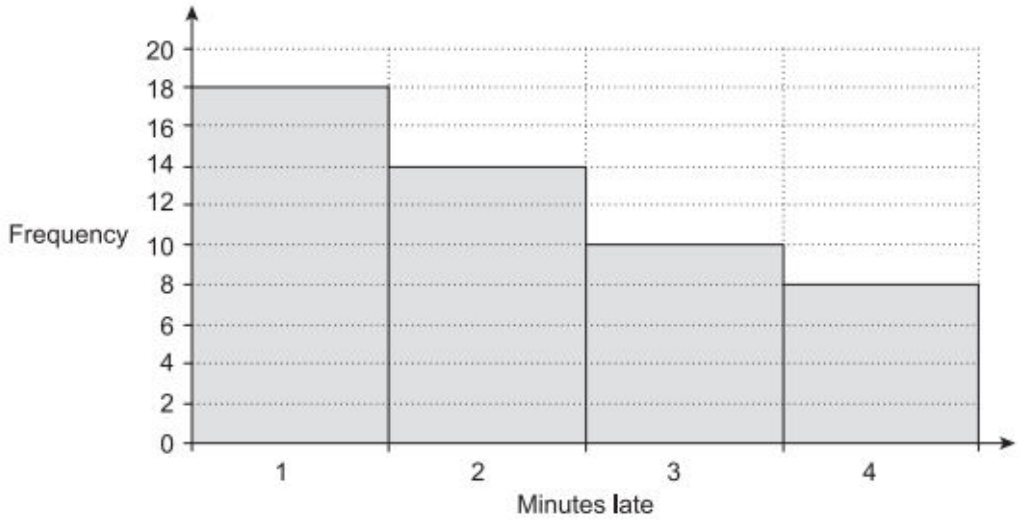
.....

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

OCR Sample Question Paper 3 – Morning/Afternoon (Calculator) Foundation Tier

17.

14 This frequency diagram summarises the number of minutes Astrid's train was late over the last 50 days.



(a) Use information from this diagram to estimate the probability that her train will be 4 minutes late tomorrow.

(a) ..... **[2]**

(b) Explain whether your answer to part **(a)** gives a reliable probability.

.....

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

AQA Thursday 4 June 2020 – Morning (Calculator) Foundation Tier

18.

26 Here is some information about the time spent on social media by 50 people.

Time, t minutes	Number of people
$0 < t \leqslant 15$	2
$15 < t \leqslant 30$	9
$30 < t \leqslant 45$	31
$45 < t \leqslant 60$	8

Circle the number of people who spent more than 30 minutes.

[1 mark]

9 11 31 39

AQA Tuesday 21 May 2019 – Morning (Non-Calculator) Foundation Tier

19.

18 Here is some data about the people listening to a radio station one day.

	Percentage	**Mean number of hours listening**	**Range of number of hours listening**
Aged 40 or under	21	1.2	4.5
Aged 41 or over	79	6.3	13.9

Compare the data for people aged 40 or under with the data for people aged 41 or over.
Make **three** comparisons.

[3 marks]

Comparison 1 _____

_____

_____

Comparison 2 _____

_____

_____

Comparison 3 _____

_____

_____

AQA Thursday 6 June 2019 – Morning (Calculator) Foundation Tier

20.

23 In a sport, injury time is added time played at the end of a match.

The table shows the injury time, t (minutes) played in 380 matches.

Injury time, t (minutes)	Frequency
$0 < t \leqslant 2$	59
$2 < t \leqslant 4$	158
$4 < t \leqslant 6$	106
$6 < t \leqslant 8$	45
$8 < t \leqslant 10$	12

23 (a) Circle the **two** words that describe the data.

[1 mark]

continuous discrete grouped ungrouped

23 (b) Which class interval contains the median?

You **must** show your working.

[2 marks]

Answer _____ $< t \leqslant$ _____

23 (c) What percentage of the matches had **more than** 6 minutes of injury time?

[2 marks]

Answer _____ %

AQA Tuesday 6 November 2018 – Morning (Non-Calculator) Foundation Tier

21.

27 Kim works at an airport in the UK.

She records the number of planes landing between 10 am and 2 pm each day.

The table shows the data for the first 10 days in January.

Day	1	2	3	4	5	6	7	8	9	10
Number of planes	148	151	147	155	153	147	155	102	151	154

27 (a) The airport was affected by fog on one of the days.

Which day do you think it was?

Give a reason for your answer.

[1 mark]

Day _____

Reason _____

_____

27 (b) Kim uses the data to predict how many planes will land at the airport in a year.

In her method, she

uses an estimate of 150 planes in each 4-hour period throughout the day

assumes the same number of planes each day.

Work out her prediction.

[3 marks]

_____

_____

_____

_____

Answer _____

27 (c) In fact,

fewer planes land in winter than in summer

fewer planes land at night than during the day.

What does this tell you about Kim's prediction?

Tick **one** box.

- ☐ Her prediction is too low
- ☐ Her prediction is too high
- ☐ Her prediction could be too low or too high

Give a reason for your answer.

[2 marks]

_____

_____

_____

AQA Thursday 8 November 2018 – Morning (Calculator) Foundation Tier

22.

22 Here is some information about 20 trains leaving a station.

Number of minutes late, t	Number of trains	Midpoint	
$0 \leqslant t < 5$	12		
$5 \leqslant t < 10$	7		
$10 \leqslant t < 15$	1		
$t \geqslant 15$	0		

22 (a) Work out an estimate of the mean number of minutes late.

[3 marks]

Answer _____ minutes

22 (b) The station manager looks at the information in more detail.

Number of minutes late, t	Number of trains
$0 \leqslant t < 2$	12
$2 \leqslant t < 4$	0
$4 \leqslant t < 6$	7
$6 \leqslant t < 8$	0
$8 \leqslant t < 10$	0
$10 \leqslant t < 12$	1

He works out an estimate of the mean using this information.

How does his estimate compare with the answer to part (a)?

Tick **one** box.

[1 mark]

- ☐ Higher than part (a)
- ☐ Same as part (a)
- ☐ Lower than part (a)
- ☐ Not possible to tell

AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

23.

6 Gemma has four groups of friends on a social media site.
The table shows the number of friends in each group.

Group	Number of friends
Family	8
Netball	8
School	26
Guides	11

6 (a) Which group is the mode?

[1 mark]

Answer _____

6 (b) Gemma wants a pictogram to show the information.
She has drawn the first two rows.

Complete the pictogram.
Remember to complete the key.

[3 marks]

Key: ◯ represents _____ friends

Family	◯ ◯
Netball	◯ ◯
School	
Guides	

AQA Monday 6 November 2017 – Morning (Calculator) Foundation Tier

24.

14 Chris sells lawnmowers.

The table shows the number he sold each quarter for three years.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2016	17	64	50	5
2015	9	72	61	1
2014	19	58	53	2

14 (a) In which year did he sell the most lawnmowers?

You **must** show your working.

[2 marks]

Answer _____

14 (b) He uses the table to decide the number of lawnmowers to stock each quarter.

At the **start** of which quarter should Chris stock the most lawnmowers?
Circle your answer.

[1 mark]

Quarter 1 Quarter 2 Quarter 3 Quarter 4

AQA Wednesday 8 November 2017 – Morning (Calculator) Foundation Tier

25.

19 The following data comes from a large sample survey of the audience at a concert.

	Percentage	Mean age (years)	Age range (years)
Male	17%	20.3	6
Female	83%	25.7	28

Make **three** comparisons of males and females at the concert.
Use the headings given.

[3 marks]

Proportion of the audience _____

_____

_____

Average age _____

_____

_____

Spread of ages _____

_____

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

26.

25 The table shows information about the times for 10 people to complete a task.

Time, t (minutes)	Frequency
$0 < t \leqslant 20$	1
$20 < t \leqslant 40$	6
$40 < t \leqslant 60$	3

These statements are about the mean and range of the actual times.
Tick the correct box for each statement.

[4 marks]

	True	False
The mean could be less than 20 minutes	☐	☐
The mean could be more than 40 minutes	☐	☐
The mean could be less than 40 minutes	☐	☐
The range could be more than 40 minutes	☐	☐
The range could be less than 40 minutes	☐	☐
The range could be more than 60 minutes	☐	☐

AQA Sample Paper 3– Morning (Calculator) Foundation Tier

27.

17 The table shows information about the marks of 30 students in a test.

Mark	Frequency
14	2
15	10
16	2
17	3
18	13
	Total = 30

Students who scored less than the mean mark have to retake the test.

How many students have to retake the test?

You **must** show your working.

[3 marks]

Answer _____