

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Statistics

Calculating the median

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For questions 1 to 4 you must **NOT** use a calculator.



Q1.

A company sells bags of toffees and bags of mints.

Here are the numbers of sweets in 11 bags of toffees.

55 50 49 51 55 47 54 50 49 55 57

Here are the numbers of sweets in 10 bags of mints.

46 47 47 48 48 50 53 54 54 54

The company claims that the average number of sweets per bag is at least 50

Using medians, is the company's claim correct for each type of sweet?

You **must** work out the median for toffees and the median for mints.

Tick a box for toffees.

☐

Yes

☐

No

Tick a box for mints.

☐

Yes

☐

No

(Total 4 marks)

Q2.

These expressions represent four numbers.

$$2x + 2$$

$$3x - 1$$

$$4x - 6$$

$$5x + 2$$

The sum of the first two expressions is 36

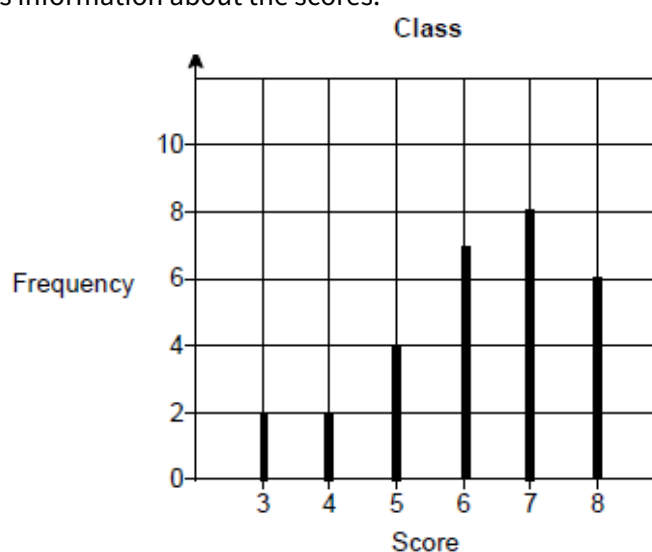
Work out the value of the median of the four numbers.

(Total 5 marks)

Q3.

Students in a class took a spelling test.

The diagram shows information about the scores.



Lucy is one of the 29 students in the class.

Her score was the same as the **median** score for her class.

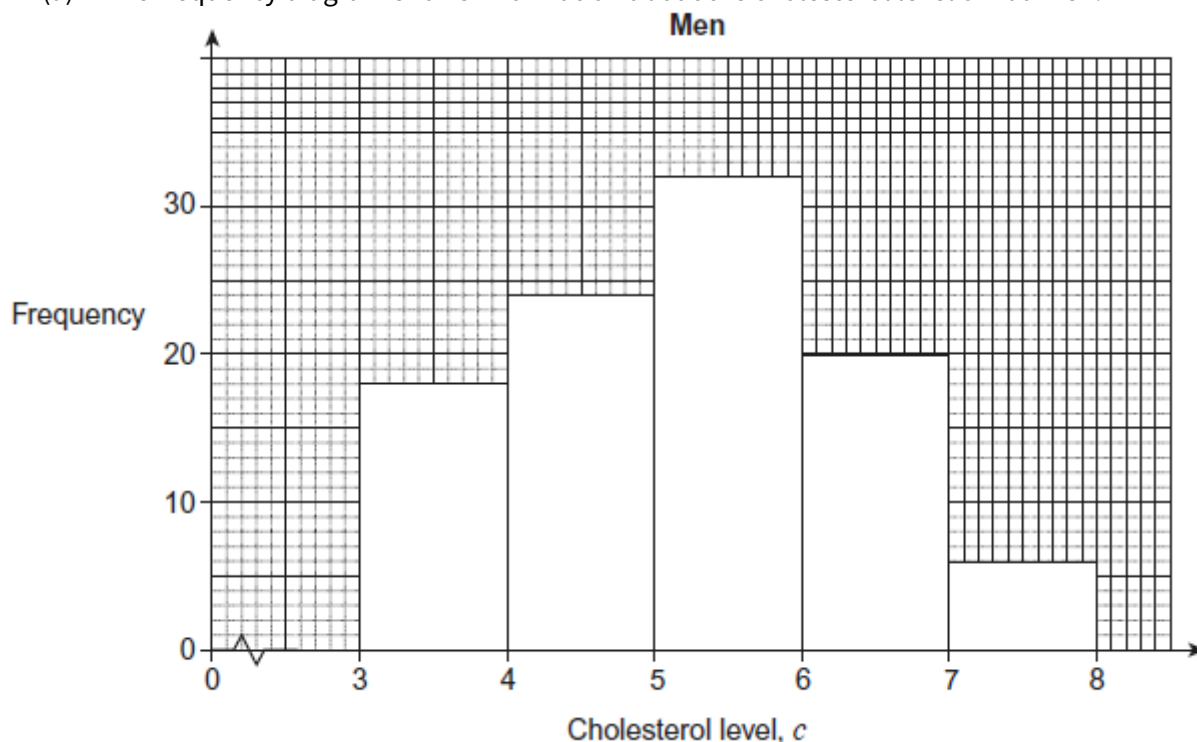
Work out her score.

(Total 2 marks)

Question 4 is **higher** tier only.

Q4.

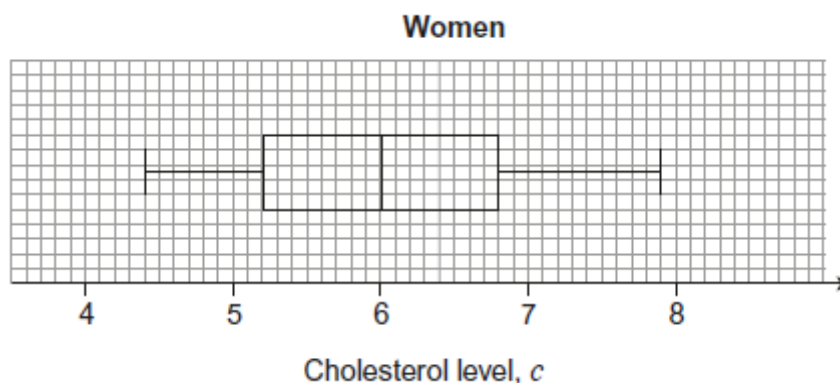
- (a) The frequency diagram shows information about the cholesterol level of 100 men.



Work out an estimate of the median cholesterol level of the men.

(3)

- (b) The box plot shows information about the cholesterol level of 100 women.



None of these 100 women have a cholesterol level of 6.8

Estimate how many of the **200 people** have a cholesterol level above 6.8

You **must** show your working.

(3)

(Total 6 marks)

For the rest of the questions, you may use a calculator.



Q5.

Here is a list of numbers.

21 17 23 21 29 32 21 25 36

Work out the median.

(Total 2 marks)

Q6.

Here are some numbers.

12 8 6 11 2 7 7 18 10

Work out the median.

(Total 2 marks)

Q7.

The times that 60 customers waited at a supermarket checkout are shown.

Time, t (minutes)	Frequency
$0 \leq t < 2$	18
$2 \leq t < 4$	10
$4 \leq t < 6$	16
$6 \leq t < 8$	12
$8 \leq t < 10$	4

(a) Write down the class interval that contains the median.

(1)

(b) The manager of the supermarket says,
 “Over 90% of our customers wait less than eight minutes.”
 Does the data support this statement?

Yes

☐

No

☐

You **must** show your working.

(2)

(Total 3 marks)

Q8.

Here is a list of numbers.

3 2 6 4 9 1

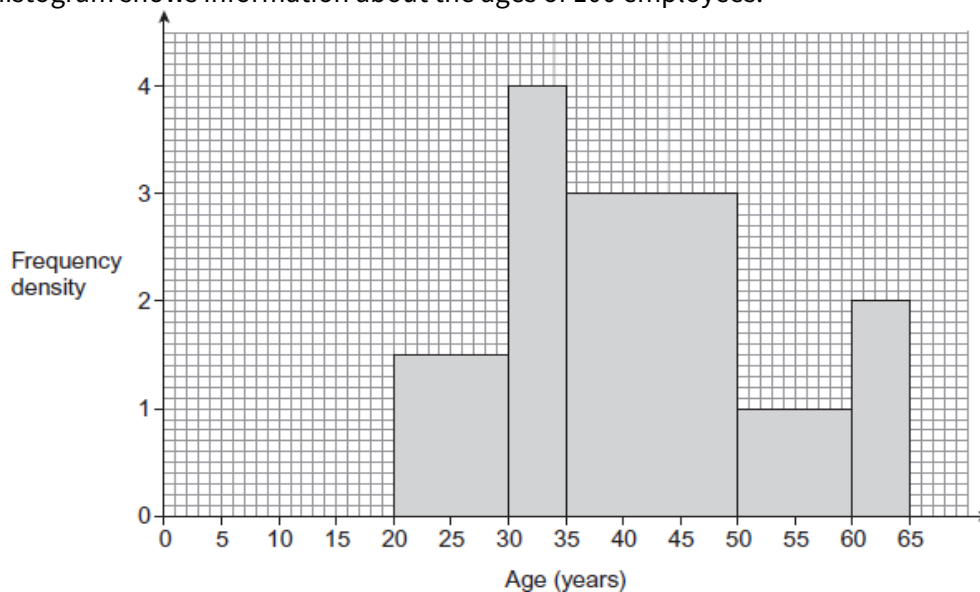
Work out the median value.

(Total 2 marks)

Question 9 is **higher** tier only.

Q9.

The histogram shows information about the ages of 100 employees.



Work out an estimate of the median age of the employees.

(Total 4 marks)