

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Statistics

Interpreting frequency tables and two-way tables

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 5 you must **NOT** use a calculator.



Q1.

Companies A and B sell insurance for mobile phones.

The table shows the **monthly** costs for two types of cover, Damage and Loss.

Company	Damage	Loss
A	£8.65	£12.20
B	£7.25	£14.10

- (a) Work out the difference in monthly cost for the two types of cover with **Company A**.

(2)

- (b) Ben wants Damage cover with **Company B**.
How much in total will he pay for one **year**?

(3)

(Total 5 marks)

Q2.

Here is some information about a group of animals.

	Cats	Dogs
Dark fur	15	7
Light fur	5	14

- (a) Write down the number of dark fur dogs to light fur dogs as a ratio.
Give your answer in its simplest form.

(1)

- (b) What percentage of the cats have dark fur?

(2)

(Total 3 marks)

Q3.

In the table, a , b and c represent numbers.

The total for each row is given.

Work out the **numbers** for the column totals.

	Row totals		
	a	a	a
	b	b	a
	$2a$	$2c$	b
Column totals			

(Total 4 marks)

Q4.

200 students were each asked about the monthly cost of their phone contract.

Here are the results.

	Less than £25	£25 or over
School students	40	90
College students	32	38

- (a) How many **more** school students than college students were asked?

(2)

- (b) What percentage of the 200 students had a monthly cost **less than £25** ?

(2)

(Total 4 marks)

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



Q5.

30 students were asked to draw a circle or a square and to colour it in.
Here are the results.

	Red	Blue	Green
Circle	4	8	7
Square	6	3	2

(a) How many **blue circles** were drawn?

(1)

(b) How many **squares** were drawn altogether?

(1)

(Total 2 marks)

Q6.

20 students choose a sport.

Boy	Tennis
Girl	Basketball
Girl	Tennis
Boy	Football
Boy	Tennis
Girl	Football
Boy	Tennis
Boy	Football
Boy	Basketball
Girl	Tennis

Girl	Football
Boy	Basketball
Girl	Tennis
Girl	Tennis
Girl	Tennis
Boy	Football
Boy	Football
Girl	Basketball
Boy	Basketball
Boy	Football

(a) How many boys choose tennis?

(1)

(b) Put the information into the two-way table.

Remember to complete the totals.

	Tennis	Basketball	Football	Total
Boys				
Girls				
Total				20

(4)

(Total 5 marks)

Q7.

Here is some information about a group of 20 children.

	Boys	Girls
Left-handed	4	1
Right-handed	7	8

(a) What fraction of the 20 children are right-handed?
Write your fraction in its simplest form.

(3)

(b) A child is chosen at random from the group.
Work out the probability that the child is a girl.

(2)

(Total 5 marks)

Q8.

The table shows the Geography and History grades of 100 students.

		History				
		D	C	B	A	A*
Geography	D	3	5	1	2	0
	C	6	8	4	3	1
	B	3	9	5	9	2
	A	2	3	8	10	3
	A*	0	2	4	5	2

- (a) How many students have at least one grade A* in these subjects? (2)
- (b) How many students have a higher grade in Geography than in History? (2)

(Total 4 marks)

Q9.

80 people were asked if they own a car.
The table shows some of the information.

	Yes	No	Total
Women	18		35
Men	33	12	
Total			80

- (a) How many men said yes? (1)
- (b) Complete the table. (3)

(Total 4 marks)

Q10.

The table shows the number of desktop computers and laptops in 50 households.

		Desktop computers			
		0	1	2	3
Laptops	0	0	6	1	0
	1	5	10	4	4
	2	1	8	5	0
	3	3	2	1	0

- (a) How many households have two laptops? (1)
- (b) How many households have more laptops than desktop computers? (2)

(Total 3 marks)

Q11.

The table shows information about 80 shirts in a shop.

	slim	tailored	regular	classic
grey	2	6	7	4
blue	8	5	9	5
purple	1	3	4	10
white	11	0	2	3

- (a) How many of the shirts are **white slim**? (1)
- (b) What fraction of the 80 shirts are **purple classic**?
Give your answer in its simplest form. (2)
- (c) How many of the shirts are **tailored**? (1)
- (d) How many of the **blue** shirts are **slim or regular**? (1)
- (Total 5 marks)**

Q12.

Eva owns a restaurant.

The table shows the number of customers on four days.

	Tuesday	Wednesday	Thursday	Friday
Lunch	25	22	27	31
Dinner	50	48	70	89
Total	75	70	97	120

- (a) How many **more** customers in total were there on Friday than on Thursday? (2)
- (b) She keeps a tally of the number of customers who order pudding each day.
Complete the table.

Day	Tally	Frequency
Tuesday	HHH HHH HHH II	17
Wednesday	HHH HHH HHH	
Thursday	HHH HHH HHH HHH IIII	
Friday	HHH HHH HHH HHH HHH HHH	30

- (c) What fraction of **Friday's** customers ordered a pudding?
Give your answer in its simplest form. (2)
- (d) Here is some information about Saturday. (2)

Number of customers	150
Number who order pudding	50

Eva thinks the fraction of customers who ordered puddings on Saturday is greater than on Friday.

Is she correct?

You **must** show your working.

(3)
(Total 9 marks)

Q13.

A box contains 36 chocolates.

The chocolates are milk or dark and have hard or soft centres.

$\frac{4}{9}$

of the chocolates have soft centres.

There are twice as many milk chocolates as dark.

5 of the dark chocolates have soft centres.

- (a) Complete the two-way table.

	Hard centre	Soft centre
Milk		
Dark		5

(4)

One chocolate is chosen at random.

- (b) What is the probability that it is a dark chocolate with a soft centre?

(1)

- (c) What is the probability that it has a hard centre?

(1)

(Total 6 marks)

Q14.

The pay of 100 students with Saturday jobs was recorded.

Pay (£x)	Number of students
$0 < x \leq 10$	2
$10 < x \leq 20$	44
$20 < x \leq 30$	41
$30 < x \leq 40$	1
$40 < x \leq 50$	2
$50 < x \leq 60$	4
$60 < x \leq 100$	6
Total = 100	

- (a) How many were paid more than £30?

(1)

- (b) How many were paid £5 or less?

Circle your answer.

0

1

2

Cannot tell

(1)

- (c) Work out the class interval that contains the median.

(1)

(Total 3 marks)

Q15.

A shop sells these 15 ice-creams.

Chocolate Vanilla Vanilla Vanilla Strawberry
 Vanilla Chocolate Vanilla Strawberry Strawberry
 Chocolate Chocolate Strawberry Vanilla Chocolate

(a) Complete the table.

Flavour	Tally	Frequency
Chocolate		
Vanilla		
Strawberry		
		Total = 15

(3)

(b) The shop sells

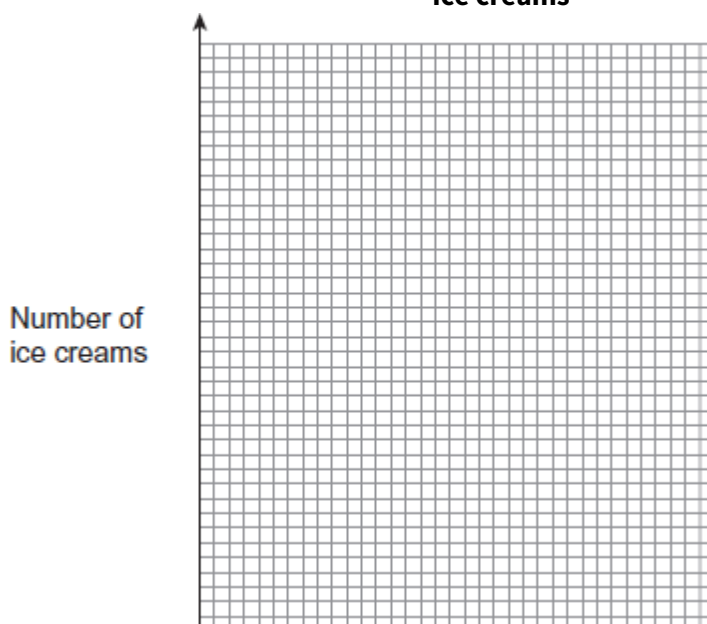
7 cones

5 tubs

3 wafers.

Show this information on a bar chart.

Ice creams



(4)

(Total 7 marks)

Q16.

50 cars arrive at a car park.

The table shows the number of people in each car.

Number of people	Number of cars
1	9
2	12
3	18
4	7
5	4

(a) One of the cars is chosen at random.

Work out the probability that there are **more than 3** people in the car.

(2)

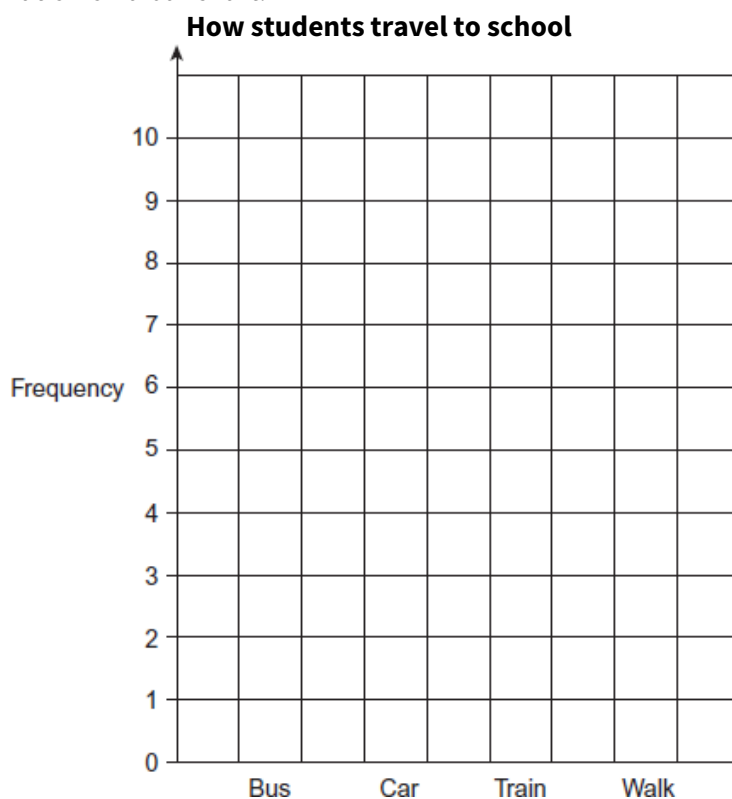
(b) Work out the total number of people in the 50 cars.

(2)

(Total 4 marks)

Q17.

20 students give information about how they travel to school.
 Half the students travel by bus.
 7 students travel by car.
 Twice as many students travel by train as walk.
 Show this information on a bar chart.



(Total 4 marks)

Q18.

Here is some information about 26 houses.
 a , b and c are all **different** numbers.

Number of bedrooms	Number of houses
1	7
2	a
3	b
4	c
5	8

The median number of bedrooms is 3.5
 Work out a possible set of values for a , b and c .

(Total 3 marks)

Q19.

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

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

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

9 11 31 39

(Total 1 mark)

Q20.

The table shows the savings for 30 students in one week.

Savings, £s	Number of students
$0 < s \leq 5$	2
$5 < s \leq 10$	14
$10 < s \leq 15$	9
More than 15	5

- (a) How many students saved more than £5?

(1)

- (b) How many students did not save anything?

(1)

(Total 2 marks)

Questions 21 and 22 are **higher** tier only.

Q21.

The ages of 100 people who entered a theme park one day were recorded.

Age (years)	Number of people
$0 < a \leq 15$	12
$15 < a \leq 30$	35
$30 < a \leq 45$	28
$45 < a \leq 70$	21
$70 < a$	4

- (a) There is a special offer:

18 years and under are free

Over 18s pay £36

On average 8000 people visit the theme park each day.

Estimate the total amount of money taken each day.

(3)

- (b) Jane says,

“12% of people entering the theme park are under 15 years of age.”

Explain why she might be wrong.

(1)

(Total 4 marks)

Q22.

100 people were asked about the distance they travel from home to work.
The table shows information about the results.

Distance, d (miles)	Frequency
$0 \leq d < 5$	21
$5 \leq d < 10$	24
$10 \leq d < 20$	37
$20 \leq d < 40$	18

(a) Write down the **greatest** possible number of people who work from home.

(1)

(b) One person is chosen at random.

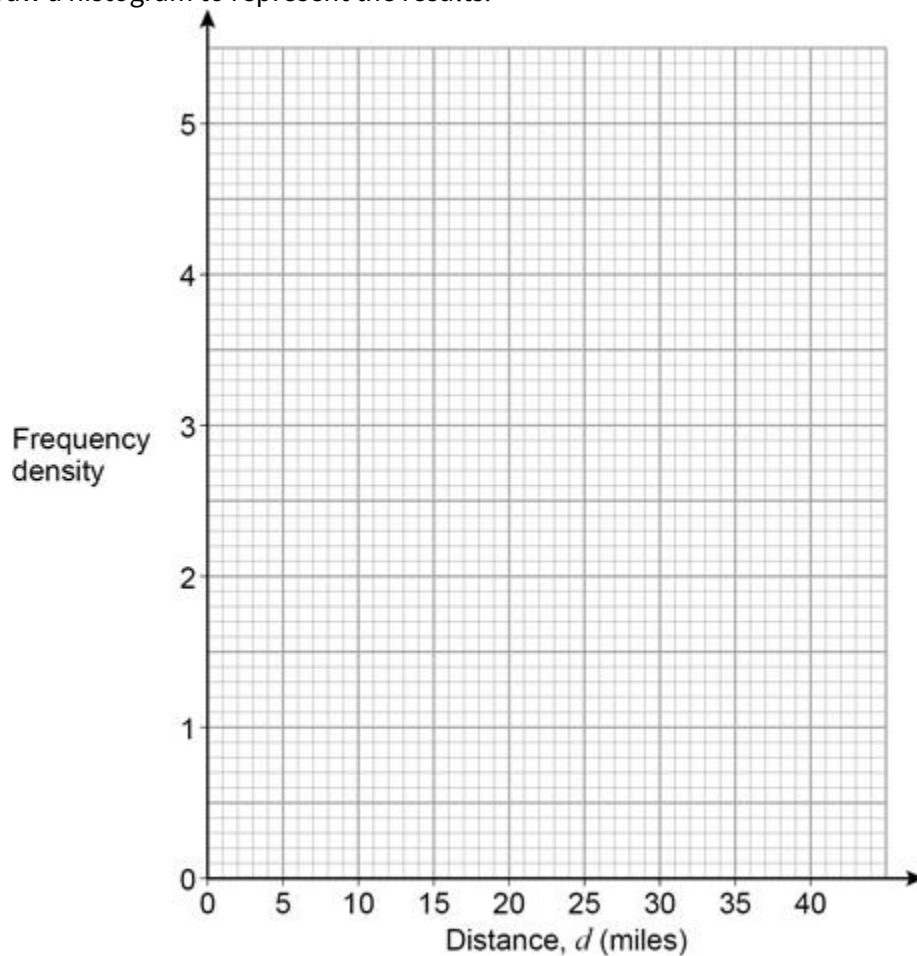
Work out the probability that the person travels **at least** 10 miles.

(1)

(c) The table is repeated.

Distance, d (miles)	Frequency
$0 \leq d < 5$	21
$5 \leq d < 10$	24
$10 \leq d < 20$	37
$20 \leq d < 40$	18

Draw a histogram to represent the results.



(3)

(Total 5 marks)