

Name

Class



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# Sampling

(9 – 1) Topic booklet

# Higher

These questions have been collated from previous years GCSE Mathematics papers.

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1H** question you are not allowed to use a calculator.
- If the question is a **2H** or a **3H** question, you may use a calculator to help you answer.

## Information

- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

**Answer ALL questions**  
**Write your answers in the space provided.**  
**You must write down all the stages in your working.**

- 3** Hannah is planning a day trip for 195 students.

She asks a sample of 30 students where they want to go.  
Each student chooses one place.



The table shows information about her results.

Place	Number of students
Theme Park	10
Theatre	5
Sports Centre	8
Seaside	7

- (i) Work out how many of the 195 students you think will want to go to the Theme Park.

.....  
(2)

- (ii) State any assumption you made **and** explain how this may affect your answer.

.....  
.....  
.....  
(1)

- 4 Each person in a fitness club is going to get a free gift.  
Stan is going to order the gifts.



Stan takes a sample of 50 people in the fitness club.  
He asks each person to tell him the gift they would like.

The table shows information about his results.

Gift	Number of people
sports bag	17
gym towel	7
headphones	11
voucher	15

There are 700 people in the fitness club.

- (i) Work out how many sports bags Stan should order.

.....  
(2)

- (ii) Write down any assumption you made **and** explain how this could affect your answer.

.....  
.....  
.....  
.....  
(1)

7 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.

.....

.....

- 13** A factory makes 450 pies every day.  
The pies are chicken pies or steak pies.

Each day Milo takes a sample of 15 pies to check.

The proportion of the pies in his sample that are chicken is the same as the proportion of the pies made that day that are chicken.

On Monday Milo calculated that he needed exactly 4 chicken pies in his sample.

- (a) Work out the total number of chicken pies that were made on Monday.

.....  
(2)

On Tuesday, the number of steak pies Milo needs in his sample is 6 correct to the nearest whole number.

Milo takes at random a pie from the 450 pies made on Tuesday.

- (b) Work out the lower bound of the probability that the pie is a steak pie.

.....  
(2)