

Name: \_\_\_\_\_

## GCSE (1 – 9)

# Systematic Listing

### Instructions

- Use **black** ink or ball-point pen.
- 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.**

### 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

- 1 Andrew is going to have a meal.  
He can choose one starter and one main from the menu.

<u>Menu</u>	
Starter	Main
Soup	Pasta
Dough Balls	Pizza
Garlic Bread	Salad

Write down all the possible combinations Andrew can choose.

Soup + Pasta      DB + Pasta      GB + Pasta  
Soup + Pizza      DB + Pizza      GB + Pizza  
Soup + Salad      DB + Salad      GB + Salad

(Total for question 1 is 2 marks)

- 2 William is going to roll a 6 sided dice and flip a coin.  
The dice can land on 1, 2, 3, 4, 5 or 6.  
The coin can land on heads or tails.

List all the possible outcomes.

1H 1T 2H 2T 3H 3T 4H 4T 5H  
5T 6H 6T

(Total for question 2 is 2 marks)

- 3 George is going to flip a coin three times.

List all the possible outcomes.

HHT HHH TTH TTT  
HTH HTT THT THH

(Total for question 3 is 2 marks)

- 4 Charlotte has to choose which subjects she wants to study.  
She can choose one humanity and one language from the options.

<u>Options</u>	
Humanities	Languages
History H	French F
Geography Geog	German Ger
	Spanish S

Write down all the possible combinations Charlotte can choose.

H, F                      Geog, F  
 .....  
 H, Ger                   Geog, Ger  
 .....  
 H, S                      Geog, S  
 .....

(Total for question 4 is 2 marks)

- 5 Archie is going to roll two 6-sided dice.  
Each dice can land on 1, 2, 3, 4, 5 or 6.

(a) List all the possible outcomes.

11, 12, 13, 14, 15, 16, 21, 22, 23, 24  
 25, (26), 31, 32, 33, 34, (35), (36), 41  
 42, 43, (44), (45), (46), 51, 52, (53), (54), (55)  
 (56), 61, (62), (63), (64), (65), (66)

(2)  
3

Archie adds up the two numbers to get a total score.

(b) Work out the probability of Archie scoring more than 7.

$$\frac{15}{36}$$

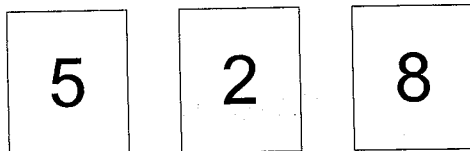
(1)  
4

(Total for question 5 is 3 marks)

OR  $\frac{5}{12}$

6

Here are three number cards

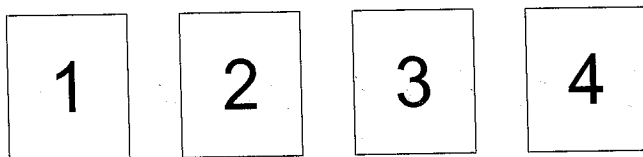
Write down all the possible **two-digit numbers** that can be made using the cards.

52      25      85  
58      28      82

(Total for question 6 is 2 marks)

7

Here are four number cards

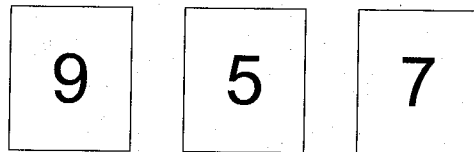
Write down all the possible **three-digit numbers** that can be made using the cards.

123      213      312      412  
124      214      314      413  
132      231      321      421  
134      234      324      423  
142      241      341      431  
143      243      342      432

(Total for question 7 is 3 marks)

8

Here are three number cards



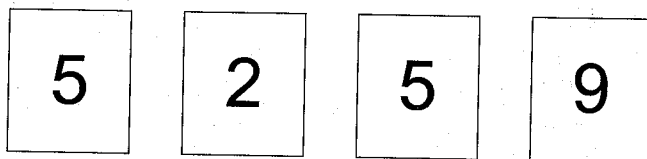
Write down all the possible three-digit numbers that can be made using the cards.

9 5 7      5 9 7      7 9 5  
 9 7 5      5 7 9      7 5 9

(Total for question 8 is 2 marks)

9

Here are four number cards



Write down all the different possible four-digit numbers that can be made using the cards.

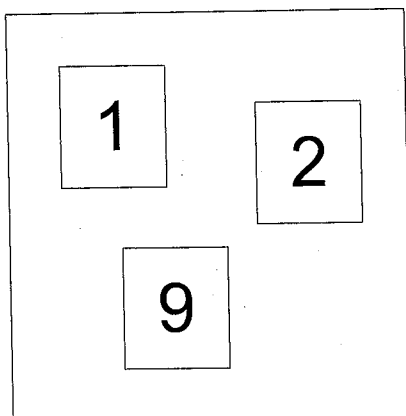
5 2 5 9      2 5 5 9      9 5 2 5  
 5 2 9 5      2 5 9 5      9 5 5 2  
 5 5 2 9      2 9 5 5      9 2 5 5  
 5 5 9 2  
 5 9 2 5  
 5 9 5 2

(Total for question 9 is 3 marks)

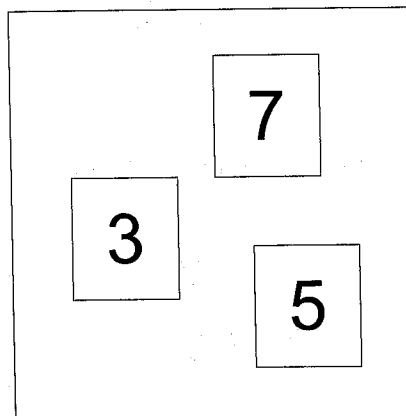
10

There are three cards in box A and three cards in box B.  
There is a number on each card.

Box A



Box B



Charles takes a card from box A and a card from box B.  
He multiplies the numbers on the two cards to get a total score.

Work out the probability that the total score is an odd number.

$$1 \times 7 = 7$$

$$1 \times 3 = 3$$

$$1 \times 5 = 5$$

$$2 \times 7 = 14$$

$$2 \times 3 = 6$$

$$2 \times 5 = 10$$

$$9 \times 7 = 63$$

$$9 \times 3 = 27$$

$$9 \times 5 = 45$$

$$\frac{6}{9}$$

(Total for question 10 is 3 marks)

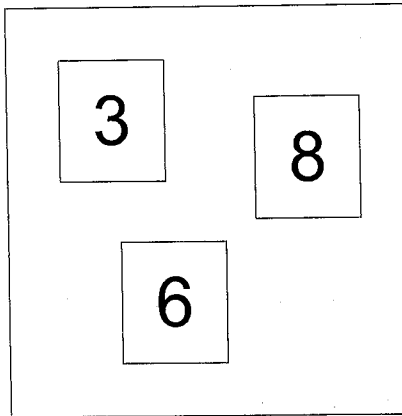
$$\left[ \frac{2}{3} \right]$$



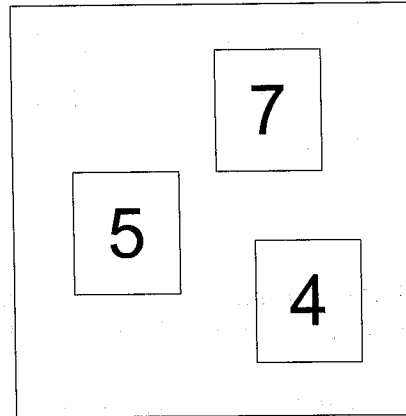
12

There are three cards in box A and three cards in box B.  
There is a number on each card.

Box A



Box B



Harry takes a card from box A and a card from box B.

(a) Write down all the possible combinations of cards Harry can take.

$3, 7$      $3, 5$      $3, 4$   
 $8, 7$      $8, 5$      $8, 4$   
 $6, 7$      $6, 5$      $6, 4$

(2)

Harry adds the numbers on the two cards to get a total score.

(b) Work out the probability that the total score is greater than 12.

$$\frac{3}{9}$$

(1)

(Total for question 12 is 3 marks)

$$\left[ \frac{1}{3} \right]$$