Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
TOTAL	

mathsrevision revisionworld

GCSE
Mathematics (Non-calculator Paper)

Practice Paper Style Questions – Topic: Sequences (Higher Tier)

For this paper you must have:

- black pen
- HB pencil
- ruler (with cm & mm)
- rubber
- protractor
- compass
- pencil sharpener

Time allowed
- 1 hour

Instructions
- Use **black ink** or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the space provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is **57**.
  The quality of your written communication is specifically assessed in questions indicated with an asterisk (*)
- You may ask for more answer paper and graph paper.
  These must be tagged securely to this answer booklet.
- A calculator must NOT be used.

Advice
- Read each question carefully before you answer it.
- In all calculations, show clearly how you work out your answer.
- Check your answers if you have time at the end.

There are no questions printed on this page

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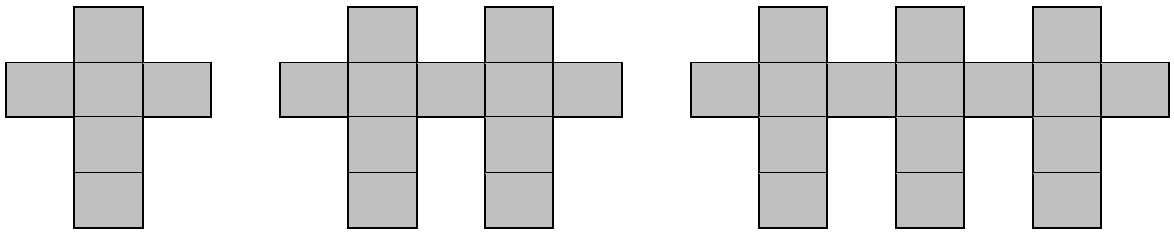
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

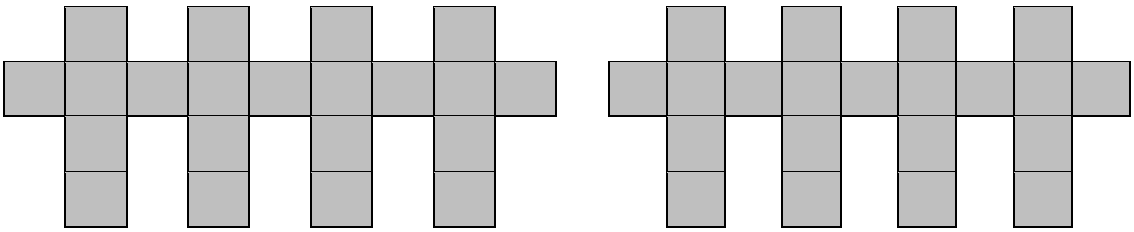
1 Here are some patterns made from squares:



Pattern number 1 | Pattern number 2 | Pattern number 3

(a) The diagram below shows part of Pattern number 5

Complete the diagram for Pattern number 5



Pattern number 4 | Pattern number 5

(1 mark)

(b) Complete the table:

Pattern number	1	2	3	4	5
Number of squares	6	11	16		

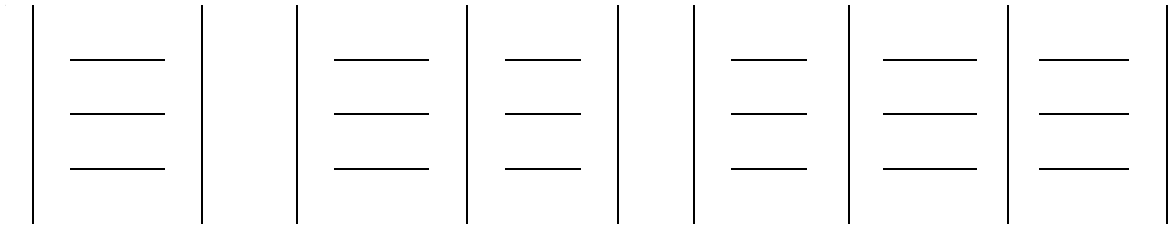
(1 mark)

(c) Find the number of squares used for Pattern number 14

Answer ..... *(2 marks)*

4

2 Here are some patterns made from straws:



Pattern number 1 | Pattern number 2 | Pattern number 3

(a) In the space below, draw Pattern number 4.

(1 mark)

(b) Complete the table:

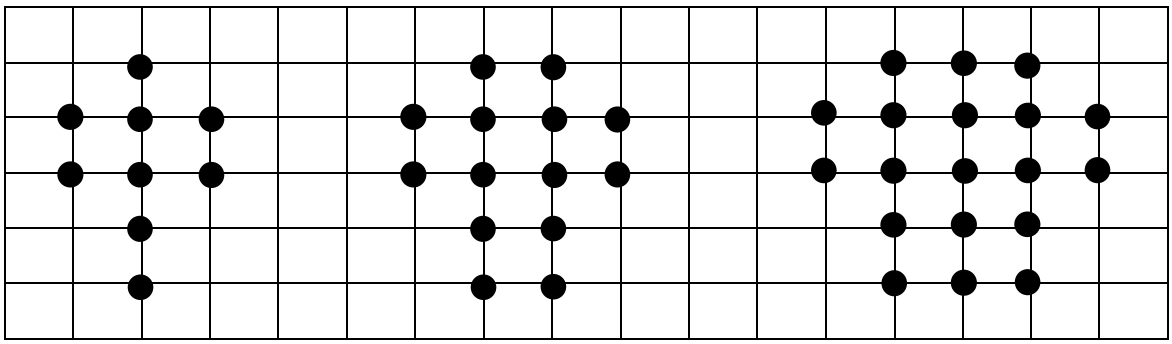
Pattern number	1	2	3	4	5
Number of straws	5	9	13		

(1 mark)

(c) Find the number of straws used for Pattern number 12

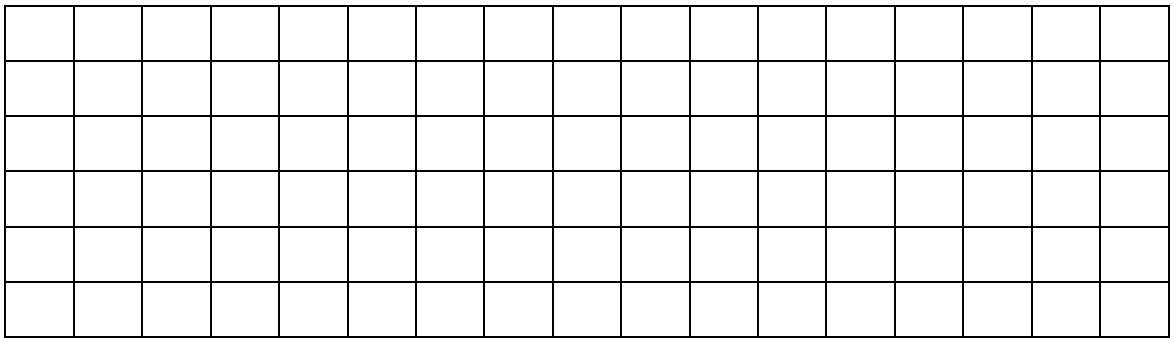
Answer ..... *(2 marks)*

3 Here are some patterns made with dots:



Pattern number 1 Pattern number 2 Pattern number 3

(a) On the grid below, draw Pattern number 4:



(1 mark)

(b) Complete the table:

Pattern number	1	2	3	4	5
Number of dots	9	14	19		

(1 mark)

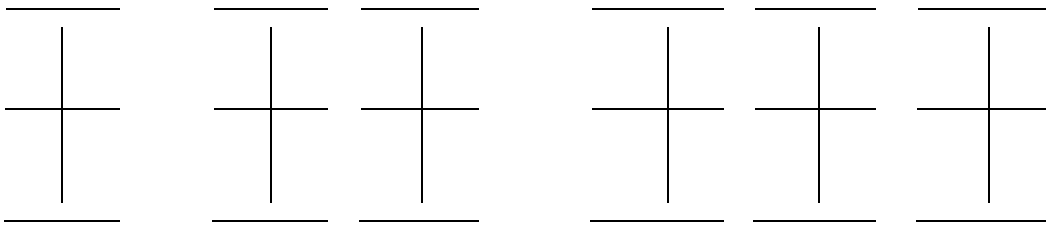
6

4 The first even number is 2

(a) Write down the 6th even number.

Answer ..... *(1 mark)*

Here are some patterns made from straws:



Pattern number 1 Pattern number 2 Pattern number 3

(b) In the space below, draw Pattern number 4.

(1 mark)

(c) Complete the table:

Pattern number	1	2	3	4	5
Number of straws	4	8	12		

(1 mark)

(d)* Jo wants to find the number of straws in Pattern number 50.

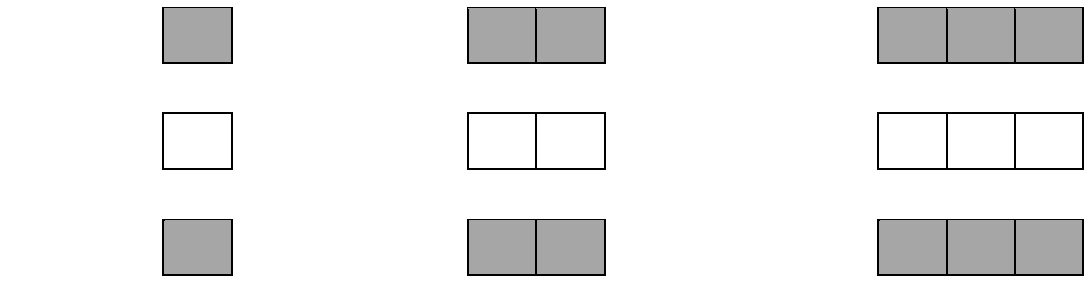
Write down a method she could use.

……...

……

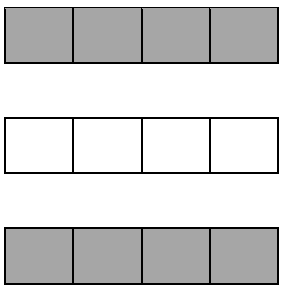
(1 mark)

5 Here are some patterns made from grey squares and white squares:



Pattern number 1 Pattern number 2 Pattern number 3

(a) In the space below, draw Pattern number 5:



Pattern number 4

Pattern number 5

(1 mark)

(b) Complete the table:

Pattern number	1	2	3	4	5
Total number of squares	3	6	9		

(1 mark)

6

(c) One of the patterns in the sequence has 20 grey squares.

How many white squares does this pattern have?

Answer ..... *(1 mark)*

(d) Another pattern in the sequence has a total of 36 squares.

How many grey squares does this pattern have?

Answer ..... *(2 marks)*

6 Here are the first four terms of a number sequence:

7 11 15 19

(a) (i) Write down the next three terms of the number sequence.

Answer ..... *(1 mark)*

(ii)* Explain how you found your answer.

..... *(1 mark)*

(b) The 15^{th} term of the number sequence is 63

Write down the 16^{th} term of the sequence.

Answer ..... *(1 mark)*

7 The n^{th} term of a number sequence is given as $5n - 2$

(a) Work out the first **three** terms of the number sequence.

Answer ..... *(2 marks)*

Here are the first four terms of another number sequence:

4 7 10 13

(b) Find, in terms of n, an expression for the n^{th} term of this number sequence.

Answer ..... *(2 marks)*

8 (a) Write down the next term in each sequence:

(i) 7 10 13 16 ……. *(1 mark)*

(ii) 7 5 3 1 ……. *(1 mark)*

(iii) 3 6 12 24 ……. *(1 mark)*

(b) The numbers in this sequence increase by the same amount each time:

12 ……. ……. 39

What are the two missing numbers?

Answer .....*and*..... *(2 marks)*

15

9 The n^{th} term of a number sequence is given as $75 - 4n$

(a) Work out the first **three** terms of the number sequence.

Answer ..... *(2 marks)*

(b) Work out the first term of the sequence that is **negative**.

Answer ..... *(2 marks)*

10 Here are the first three terms of a number sequence:

30 18 12 …….

The rule for working out the next term in the sequence is:

Add 6 to the previous term and then divide by 2

(a) Work out the first term of the sequence that is **not** a whole number.

Answer ..... *(2 marks)*

(b) This sequence uses the same rule:

Add 6 to the previous term and then divide by 2

The third term of this sequence is 15:

……. ……. 15 …….

Work out the first term.

Answer ..... *(3 marks)*

11 (a) Write down the next term in each sequence:

(i) 4 9 14 19 ……. *(1 mark)*

(ii) 6.5 6.7 6.9 7.1 ……. *(1 mark)*

(iii) 3 -1 -5 -9 ……. *(1 mark)*

(b) Here is a different sequence.

The third term of this sequence is 24 and the fourth term is 40:

……. ……. 24 40 …….

The term to term rule for this sequence is:

Double and subtract eight

Work out the first term of the sequence.

Answer ..... *(2 marks)*

14

12 (a) The numbers in this sequence decrease by the same amount each time.

75 ……. 59 51 43 …….

What are the **two** missing numbers?

Answer *.....and.....* *(2 marks)*

(b) The numbers in this different sequence decrease by the same amount each time.

29 ……. ……. ……. 9

What are the **three** missing numbers?

Answer *.....and.....and….....* *(2 marks)*

13 (a) Here are the first two terms of a sequence:

4 3 ……. ……. …….

The rule for working out the next term in the sequence is:

Multiply the previous term by two and subtract five

Work out the first negative term of the sequence.

Answer *.....* *(2 marks)*

(b) Here are the first three terms of another sequence:

5 8 11 ……. ……. ……. …….

Which of the following is the n^{th} term for this sequence? Circle the correct answer.

$n + 3$ $3n + 1$ $3n - 2$ $3n + 2$

(2 marks)

14 (a) A sequence starts:

62 59 56 53 …..…. …..….

(i) Write down the next two terms.

Answer .....*and*..... *(1 mark)*

(ii) What is the rule for continuing the sequence?

Answer ..... *(1 mark)*

(b) Another sequence starts:

48 41 34 27 …..…. …..….

If this sequence is continued, what will be the first **negative** number?

Answer ..... *(1 mark)*

(c) Continue the first sequence. What is the next number that the two sequences have in common?

Answer ..... *(1 mark)*

END OF QUESTIONS

There are no questions printed on this page

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