ABRAM ZUIL SECONDARY SCHOOL
MATHEMATICS DEPARTMENT
GRADE 7
ASSESSMENT 2

1. Write the next number in each of the following sequences. In each case give a reason for your answer.

   (a) 55, 49, 43, 37, 31, ……..

   (b) 1, 4, 9, 16, 25……..

(4 marks)

2. Each sequence of shapes below is made up of lines which join two points. For each sequence,

   (i) write down the number of lines, as a sequence; (2 Marks)

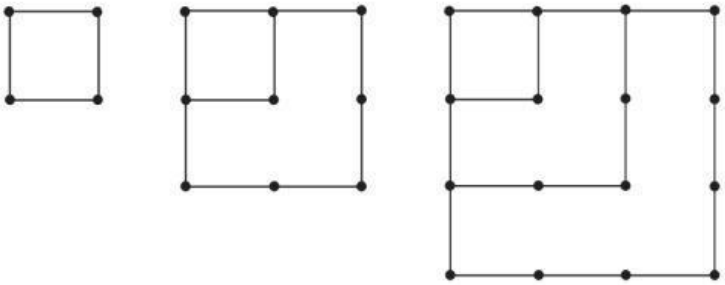
.....

   (ii) explain how to obtain the next term of the sequence; (2 Marks)

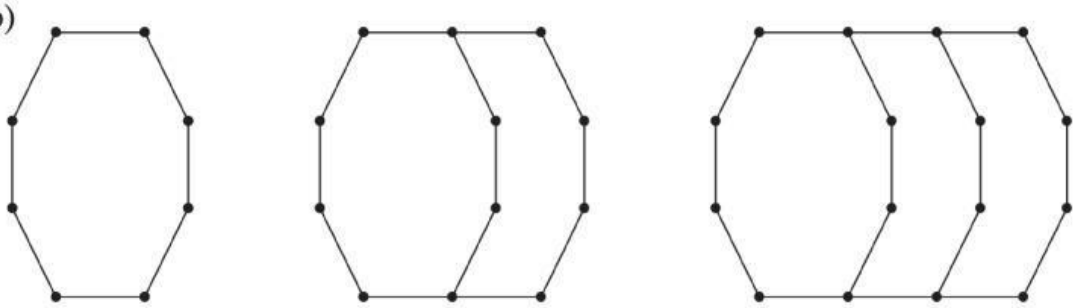
.....

   (iii) draw the next shape and check your answer. (6 Marks)

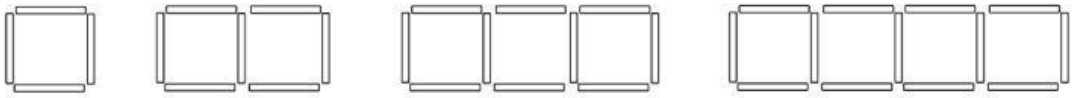
(a)



(b)



3. Patterns of squares are formed using sticks. The first four patterns are drawn below.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

The table shows the number of sticks needed for each pattern.

Pattern	1	2	3	4
Number of sticks	4	7	10	13

Patterns continue to be drawn.

a. One pattern needs 25 sticks. How many squares will there be? (*1 mark*)

.....

b. How many sticks are required for a pattern of 10 squares? (*1 mark*)

.....

(c) There is a rule for finding the number of sticks needed to make any of these patterns of squares. If the number of squares in a pattern is s, write down the rule by completing the boxes.

Number of sticks = $\square \times s + \square$ (*1 mark*)

(d) A pattern needs 100 sticks. What is the number of this pattern? (*2 marks*)

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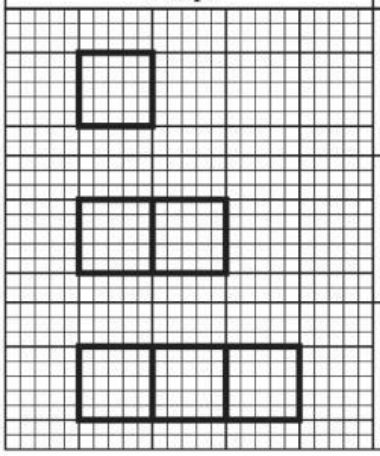
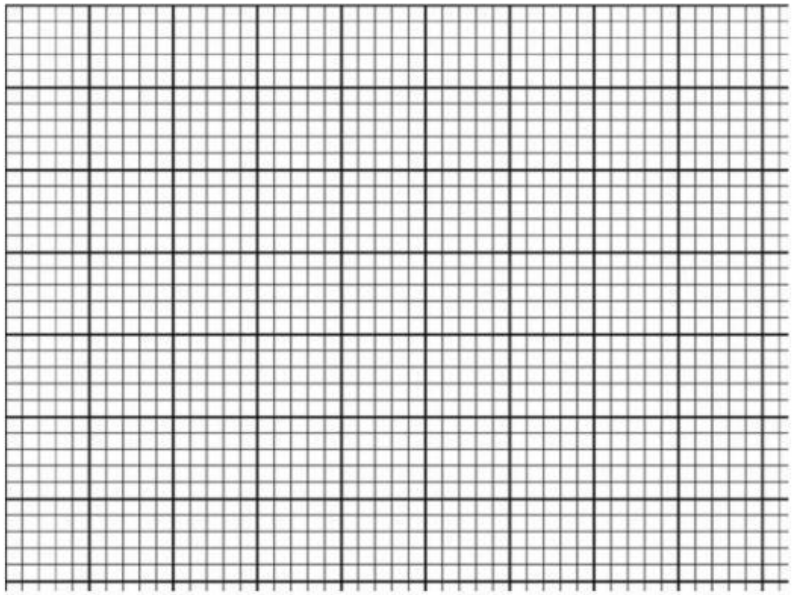
The table below shows a sequence of shapes made from squares with sides of 1 unit.

Shape	Area of Shape	Perimeter of Shape
	1	4
	2	6
	3	8

(6 marks)

(a) On graph paper, draw the next TWO shapes to continue the sequence.



25 Marks Total