2.13 Sequences and Patterns: 10-minute Pack

GL ASSESSMENT GL · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A sequence begins 95, 85, 75, 65, ...

(a) Write down the next two terms of the sequence. **(2)**

.....

(b) Find the 10th term of the sequence. **(2)**

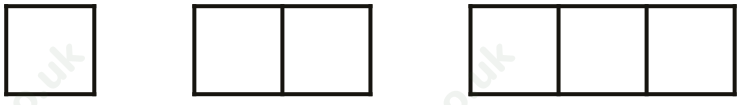
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2 Sofia makes patterns from matchsticks. Pattern 1 is a single square. Pattern 2 is two squares in a row, sharing one side with the first square. Pattern 3 is three squares in a row, again sharing sides. The table below shows the number of matchsticks used.

Pattern number: 1, 2, 3, 4, 5

Matchsticks: 4, 7, 10, ?, ?



Pattern 1
4 matchsticks

Pattern 2
7 matchsticks

Pattern 3
10 matchsticks

(a) Complete the table for pattern 4 and pattern 5. **(2)**

(b) Describe, in words, the rule connecting the pattern number and the number of matchsticks. **(1)**

.....

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3 A sequence begins 2, 5, 7, 12, 19, ... where, from the third term onwards, each term is the sum of the two terms before it.

(a) Write down the next two terms of the sequence. **(2)**

.....

(b) Describe, in words, the rule connecting the terms of the sequence. **(1)**

4 Which number continues the sequence?

1, 1, 2, 3, 5, 8, 13, __

- ☐ A) 18
- ☐ B) 20
- ☐ C) 21
- ☐ D) 24

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Mark scheme · 2.13 Sequences and Patterns: 10-minute Pack

Question 1

(a) 55 oe **B1**

(a) 45 oe **B1**

(a) Answer: 55, 45

(b) valid method, e.g. nth term = 105 - 10n, or systematic continuation to the 10th term **M1**

(b) 5 cao **A1**

(b) Answer: 5

Question 2

(a) 13 **B1**

(a) 16 **B1**

(a) Answer: 13, 16

(b) oe, e.g. start at 4 and add 3 for each extra square, or multiply the pattern number by 3 and add 1 **B1**

(b) Answer: Start at 4 and add 3 for each extra square (number of matchsticks = 3 x pattern number + 1)

Question 3

(a) 31 oe **B1**

(a) 50 (ft, sum of previous two terms) **B1**

(a) Answer: 31, 50

(b) oe: each term (from the third) is the sum of the two terms before it **B1**

(b) Answer: Each term after the first two is found by adding together the two terms before it

Question 4

C) 21 **B1**

Answer: C) 21

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