2.13 Sequences and Patterns: Test Pack

GL ASSESSMENT GL · Calculators not allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A sequence begins 3, 7, 11, 15, ...

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

(b) Describe, in words, the rule for getting from one term to the next. **(1)**

2 Which number continues the sequence?

7, 14, 21, __, 35

- ☐ A) 26
- ☐ B) 27
- ☐ C) 28
- ☐ D) 29

© Revision Library | revisionlibrary.co.uk

3 A sequence begins 7, 12, 17, 22, ...

(a) Find the nth term of the sequence. **(2)**

.....

(b) Use your formula to find the 25th term of the sequence. **(2)**

.....

(c) Determine whether 152 is a term in the sequence. Show your working. **(2)**

© Revision Library | revisionlibrary.co.uk

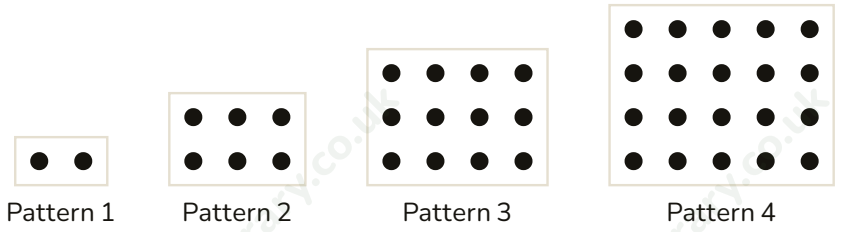
4 A bakery bakes 3 loaves on day 1. Each day after that, the bakery doubles the number of loaves it baked the day before.

(a) Complete the sequence for days 1 to 5. **(2)**

(b) Work out how many loaves the bakery will bake on day 8. **(2)**

.....

5 A pattern of dots is arranged in rectangles so that pattern n has $n^2 + n$ dots in total. Pattern 1 has 2 dots, pattern 2 has 6 dots, pattern 3 has 12 dots and pattern 4 has 20 dots.



(a) Show that the rule $n^2 + n$ gives 12 dots when n = 3. **(1)**

(b) Find the pattern number that has exactly 90 dots. **(3)**

.....

© Revision Library | revisionlibrary.co.uk

Mark scheme · 2.13 Sequences and Patterns: Test Pack

Question 1

(a) 19 oe **B1**

(a) 23 oe **B1**

(a) Answer: 19, 23

(b) add 4 to the previous term (oe) **B1**

(b) Answer: Add 4 to the previous term

Question 2

C) 28 **B1**

Answer: C) 28

Question 3

(a) common difference of 5 identified and used **M1**

(a) 5n + 2 cao **A1**

(a) Answer: 5n + 2

(b) their formula with n = 25 substituted (ft) **M1**

(b) 127 cao **A1**

(b) Answer: 127

(c) sets 5n + 2 = 152 and attempts to solve **M1**

(c) cso, yes, n = 30, so 152 is the 30th term **A1**

(c) Answer: Yes, 152 is the 30th term

Question 4

(a) first three terms correct: 3, 6, 12 **B1**

(a) all five terms correct: 3, 6, 12, 24, 48 **B1**

(a) Answer: 3, 6, 12, 24, 48

(b) valid method, e.g. 3×2^7, or continued doubling to day 8 **M1**

(b) 384 cao **A1**

(b) Answer: 384

Question 5

(a) cso: $3^2 + 3 = 9 + 3 = 12$ **B1**

(a) Answer: $3^2 + 3 = 9 + 3 = 12$

(b) sets $n^2 + n = 90$, i.e. $n^2 + n - 90 = 0$ **M1**

(b) solves by factorising or trial, e.g. $(n - 9)(n + 10) = 0$ **M1**

(b) cao, n = 9 (rejecting n = -10) **A1**

(b) Answer: Pattern 9

© Revision Library | revisionlibrary.co.uk