



**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Score:** \_\_\_\_\_ / 36

**1** Write down the missing numbers in each sequence.

a. 5 9 \_\_\_\_ 17 \_\_\_\_

b. 40 \_\_\_\_ 28 22 \_\_\_\_

c. 3 6 12 \_\_\_\_ 48

(3 marks)

Answer \_\_\_\_\_

**2** Here is a sequence.

4 11 18 25 ...

a. Write down the 3rd term.

b. Write down the term-to-term rule.

c. Write down the position of the term 25 in the sequence.

d. Is this an arithmetic sequence or a geometric sequence? Give a reason.

(4 marks)

Answer \_\_\_\_\_

**3** a. The first term of a sequence is 7. The term-to-term rule is "multiply by 2 then subtract 3". Write down the first four terms.

b. The first term of another sequence is 50. The term-to-term rule is "subtract 8". Write down the first five terms.

(3 marks)

Answer \_\_\_\_\_

4 Here are the first four cube numbers.

1 8 27 64

- Write down the next cube number after 64.
- Write down the 10th cube number.
- Explain why 200 is not a cube number.

(3 marks)

Answer \_\_\_\_\_

5 Here are the first five triangular numbers.

1 3 6 10 15

- Describe how the sequence continues from one term to the next.
- Work out the next two terms of the sequence.

(3 marks)

Answer \_\_\_\_\_

6 Here are the first four terms of an arithmetic sequence.

5 9 13 17

Find an expression, in terms of  $n$ , for the  $n$ th term of the sequence.

(2 marks)

Answer \_\_\_\_\_

7 Here are the first four terms of an arithmetic sequence.

20 17 14 11

Find an expression, in terms of  $n$ , for the  $n$ th term of the sequence.

(2 marks)

Answer \_\_\_\_\_

8

- a. The  $n$ th term of a sequence is  $4n + 3$ . Write down the first three terms and work out the 20th term.
- b. The  $n$ th term of another sequence is  $30 - 2n$ . Write down the first three terms.

(3 marks)

Answer \_\_\_\_\_

9

Here are the first three patterns in a sequence made from square tiles.

- a. Draw Pattern 4 in the space on the right.
- b. How many tiles are in Pattern 10?
- c. Find an expression, in terms of  $n$ , for the number of tiles in Pattern  $n$ .



Pattern 1



Pattern 2



Pattern 3

Pattern 4

(4 marks)

Answer \_\_\_\_\_

10

Here are the first four terms of an arithmetic sequence.

7   12   17   22

Explain why 81 is not a term of this sequence.

(2 marks)

Answer \_\_\_\_\_

11

The  $n$ th term of a sequence is  $5n - 3$

- a. Work out the 12th term of the sequence.
- b. Is 122 a term of the sequence? You must show how you get your answer.

(3 marks)

Answer \_\_\_\_\_

12

The  $n$ th term of a sequence is  $7n - 4$ .

- a. Show that 150 is a term of the sequence and write down its position.
- b. Is 200 a term of the sequence? Give a reason.
- c. Work out the first term of the sequence that is greater than 100.

(4 marks)

Answer

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End of questions | Total 36 marks