

Number Sequences

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Name: _____

Date: _____

Tick one circle for each statement — on screen (click) or with a pen. Then try the quick checks: write your answer in the box, check it against the answers at the end, and tick “right” when you got it. ★ = IGCSE Extended tier only.

Linear sequences

Term-to-term rules, the n th term and checking whether a number is a term.

	Don't know	Shaky	Got it
I can continue a sequence using the term-to-term rule.	☐	☐	☐
I can find the n th term of a linear sequence.	☐	☐	☐
I can decide whether a number is in a sequence.	☐	☐	☐

Square, cube and triangle numbers

Recognising special sequences and their shifts.

	Don't know	Shaky	Got it
I can recognise squares, cubes and triangle numbers, including shifted ones.	☐	☐	☐
I can use the triangle numbers.	☐	☐	☐

Quadratic, cubic and exponential sequences

n th terms when the differences are not constant.

	Don't know	Shaky	Got it
I can find the n th term of a quadratic sequence. ★	☐	☐	☐
I can find the n th term of an exponential sequence. ★	☐	☐	☐

Patterns of shapes

Using a pattern to predict a later one.

	Don't know	Shaky	Got it
I can use a pattern of shapes to predict a later pattern.	☐	☐	☐

Quick checks

One quick question per statement. Answer in the box, then check the answers at the end.

1. Find the next term: 3, 7, 11, 15, ...

Answer: _____ ☐ I got it right

2. Find the n th term of 5, 8, 11, 14, ...

A $3n + 2$ **B** $n + 3$ **C** $3n + 5$ **D** $2n + 3$

Answer: _____ ☐ I got it right

3. Is 100 a term of the sequence with n th term $3n + 2$?

A Yes **B** No

Answer: _____ ☐ I got it right

4. Find the n th term of 2, 5, 10, 17, 26, ...

A $n^2 + 1$ **B** $n^2 + 2$ **C** $2n^2 - 1$ **D** $n^3 + 1$

Answer: _____

☐ I got it right

5. The triangle numbers are 1, 3, 6, 10, ... What is the 8th triangle number?

Answer: _____

☐ I got it right

6. Find the n th term of 4, 10, 18, 28, 40, ...

A $n^2 + 3n$ **B** $2n^2 + 2$ **C** $n^2 + 3$ **D** $n^2 + 2n + 1$

Answer: _____

☐ I got it right

7. Find the n th term of 6, 12, 24, 48, ...

A 3×2^n **B** 6×2^n **C** $6n$ **D** $2^n + 4$

Answer: _____

☐ I got it right

8. Pattern 1 uses 4 matchsticks, pattern 2 uses 7, pattern 3 uses 10. How many are in pattern 20?

Answer: _____

☐ I got it right

Answers

Try every question first, then check.

1. 19

2. A: $3n + 2$

3. B: No

4. A: $n^2 + 1$

5. 36

6. A: $n^2 + 3n$

7. A: 3×2^n

8. 61