Sequences

Spotting the pattern and finding the rule — sequences questions reward pupils who can think a step ahead, a skill SATs papers love to test!

21. (a) The nth term of a sequence is $3n + 4$

What is the **8th** term of this sequence?

..... 1 mark

(b) The nth term of a different sequence is $\frac{n-2}{n^2}$

Write the first **three** terms of this sequence.

..... 2 marks

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22. Multiply out the brackets in these expressions.

$y(y - 6) =$ ..... 1 mark

$(k + 2)(k + 3) =$ ..... 1 mark

KS3 Maths SATs, Tier 5-7, Paper 2 (2005) - Q22

Here are the nth term expressions for three different sequences.

Sequence A	Sequence B	Sequence C
$2^{(n-1)}$	$\frac{n^2 - n + 2}{2}$	$\frac{n(n^2 - 3n + 8)}{6}$

The first three terms of each sequence are 1, 2 and 4

What is the **4th term** of each sequence?

You **must** show your working.

Sequence A _____

Sequence B _____

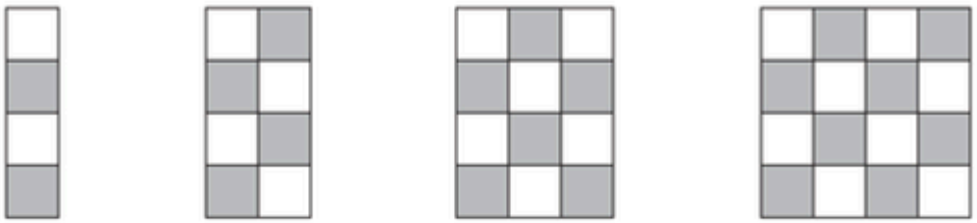
Sequence C _____

3 marks

KS3 Maths SATs, Tier 6-8, Paper 2 (2008) - Q17

Here is a sequence of shapes made with grey and white tiles.

shape number 1 | shape number 2 | shape number 3 | shape number 4



The number of grey tiles = 2 × the shape number

The number of white tiles = 2 × the shape number

(a) Altogether, how many tiles will be in shape number **5**?

..... tiles

1 mark

(b) Altogether, how many tiles will be in shape number **15**?

..... tiles

1 mark

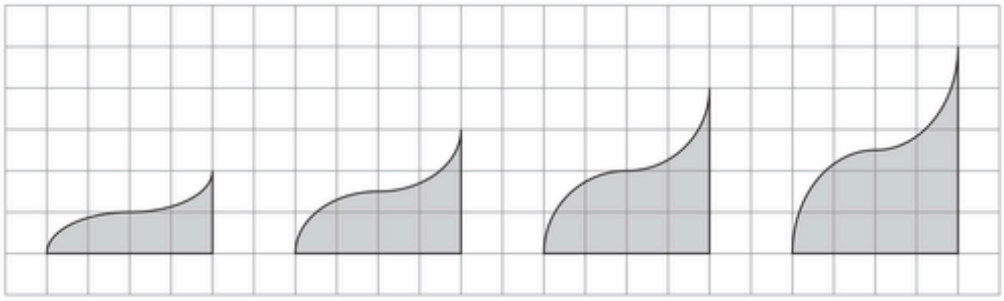
(c) Write the missing number below.

The **total** number of tiles = ... × the shape number

1 mark

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Look at the sequence of shapes on a square grid.



Shape number 1 | Shape number 2 | Shape number 3 | Shape number 4

The table shows information about these shapes.

Shape number N	Base B	Height H	Area A
1	4	2	4
2	4	3	6
3	4	4	8
4	4	5	10

Rules connect N, B, H and A.

Write one missing letter in each space below to complete the rule.

H = _____ + 1

A = _____ × 2

_____ = $2N$ + 2

2 marks

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