

Maths

# Simple quadratic and cubic sequences

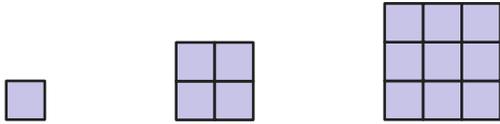
Mr Chan

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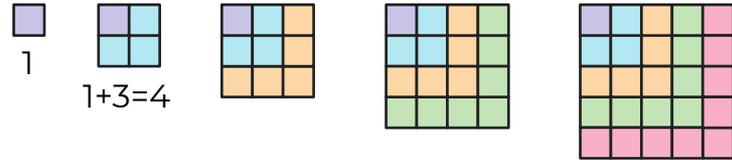
# Simple quadratic and cubic sequences

1. Use these diagrams to generate the first three square numbers.



What are the next two terms?

2. Use the shading on the diagram to show how the sequence of square numbers builds.



Describe the term-to-term rule.



# Simple quadratic and cubic sequences

3. Generate the first five terms of the sequence with  $n$ th term  $n^2 + 2n - 1$

This table may help.

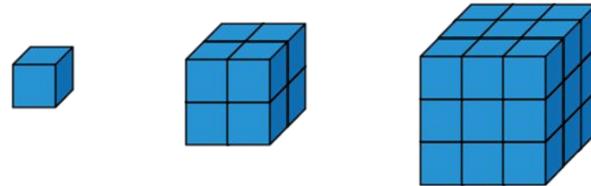
$n$	1	2	3	4	5
$n^2$	1				
$2n$	2				
$-1$	-1				
$n^2+2n-1$	2				

4. Generate the first five terms in the sequence with  $n$ th term

a)  $n^2 + 5n$

b)  $2n^2 - 3$

5. Use the cube models to help you generate the first three terms in the sequence of cube numbers.



What are the next two terms?



# Simple quadratic and cubic sequences

6. Generate the first five terms of these cubic sequences.

a)  $n^3 + 5$

b)  $n^3 - n^2$

7. Match the  $n$ th term card with the sequence.

$$n^3$$

$$n^2 + 10$$

$$3n^2$$

$$3(n^2 + 2)$$

$$n^2 + 2$$

11, 14, 19, 26, ...

1, 8, 27, 64, ...

9, 18, 33, 54, ...

3, 12, 27, 48, ...

3, 6, 11, 18, ...

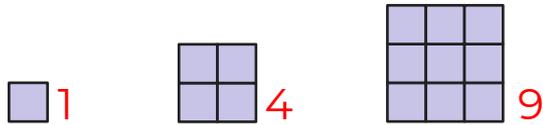


# Answers



# Simple quadratic and cubic sequences

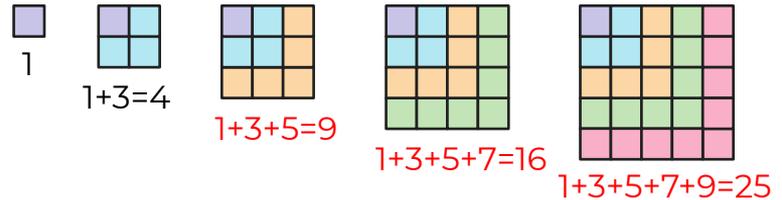
1. Use these diagrams to generate the first three square numbers.



What are the next two terms?

16, 25

2. Use the shading on the diagram to show how the sequence of square numbers builds.



Describe the term-to-term rule.

The square numbers increase by consecutive odd numbers.



# Simple quadratic and cubic sequences

3. Generate the first five terms of the sequence with  $n$ th term  $n^2 + 2n - 1$

This table may help.

$n$	1	2	3	4	5
$n^2$	1	4	9	16	25
$2n$	2	4	6	8	10
$-1$	-1	-1	-1	-1	-1
$n^2+2n-1$	2	7	14	23	34

4. Generate the first five terms in the sequence with  $n$ th term

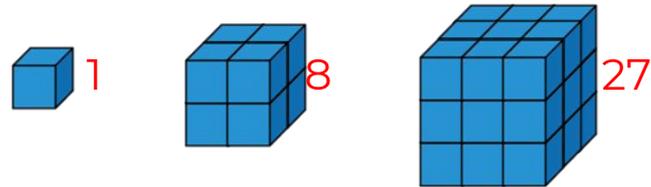
a)  $n^2 + 5n$

6, 14, 24, 36, 50

b)  $2n^2 - 3$

-1, 5, 15, 29, 47

5. Use the cube models to help you generate the first three terms in the sequence of cube numbers.



What are the next two terms? 64, 125



# Simple quadratic and cubic sequences

6. Generate the first five terms of these cubic sequences.

a)  $n^3 + 5$     6, 13, 32, 69, 130

b)  $n^3 - n^2$     0, 4, 18, 48, 100

7. Match the  $n$ th term card with the sequence.

