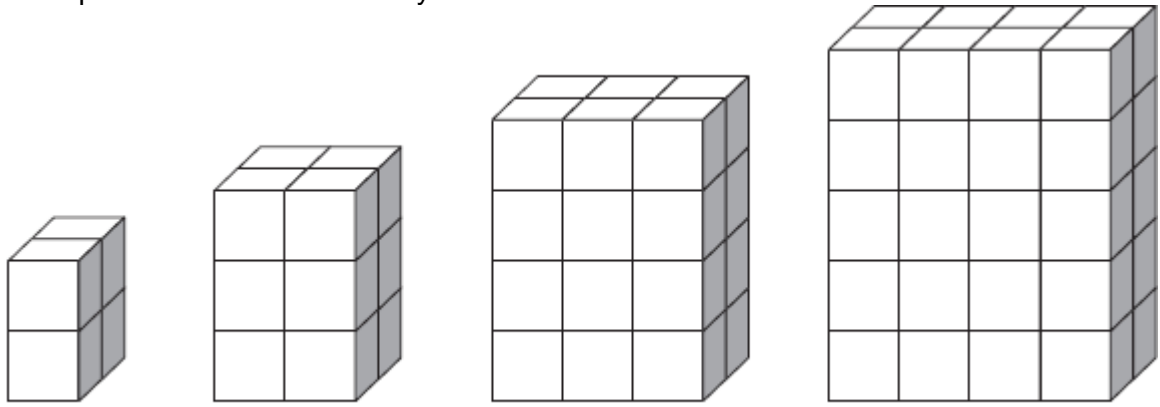


Q1.

Cuboids are made with small cubes.
 Each new cuboid is 1 cube wider and 1 cube higher than the previous cuboid.
 The depth of each cuboid is always 2 cubes.



Cuboid 1

Cuboid 2

Cuboid 3

Cuboid 4

Can cuboid 16 be made with 500 small cubes?
 You **must** show your working.

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(Total 5 marks)

Q2.

Work out an expression for the n th term of the quadratic sequence

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n th term =

(Total 4 marks)

Q3.

The n^{th} term of the linear sequence

$$2 \quad 7 \quad 12 \quad 17 \quad \dots \quad \text{is } 5n - 3$$

A new sequence is formed by squaring each term of the linear sequence and adding 1.

Prove algebraically that **all** the terms in the new sequence are multiples of 5 .

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(Total 4 marks)