

1. *Level 1 – 2 [Length: 3 minutes]*

In a list of consecutive numbers the fifth and sixth number have a sum of 21.

(a) Determine the values of the fifth and sixth number, [2]

(b) Determine the first number in the list. [1]

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2. Level 3 – 4 [Length: 5 minutes]

- (a) Determine the perimeter of a square with sides of length [2]
- (i) 1 cm
 - (ii) 2 cm
 - (iii) 3 cm

Let the length of each side of a square be equal to n .

- (b) Write down an expression for the perimeter of the square. [1]

A square has a perimeter of 36 cm.

- (c) Determine the length of each side of the square. [2]

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3. *Level 5 – 6 [Length: 6 minutes]*

Find the next three terms in each sequence

(a) 1, 4, 9, 16, 25, 36, 49 [2]

(b) 1, 1, 2, 3, 5, 8, 13 [2]

(c) 1, 3, 6, 10, 15, 21, 28 [2]

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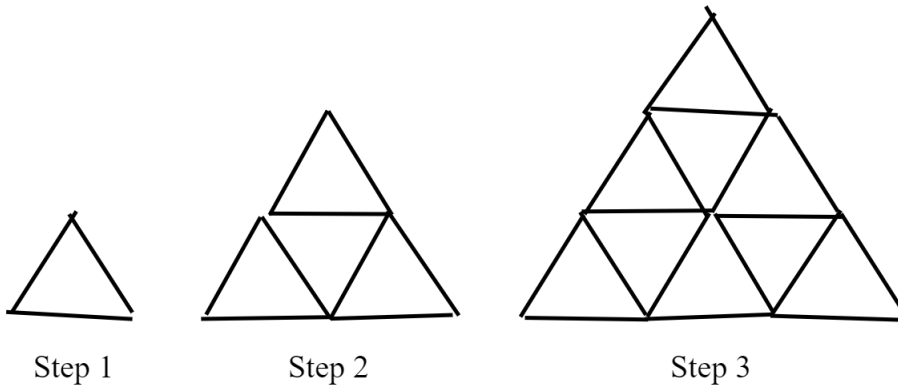
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4. Level 7 – 8 [Length: 11 minutes]

Equal length sticks are arranged to form equilateral triangles which together form a larger equilateral triangle. The first three steps are shown below.



- (a) Sketch the arrangement of sticks in step 4. [2]
- (b) Summarise your results in the table below. Use any patterns you notice to find unknown values. [3]

Step	1	2	3	4	5	6
Sticks	3	9				

- (c) Describe the pattern you used to complete the table. [2]
- The arrangement of sticks in step 2 form a total of five triangles.
- (d) Determine the total number of triangles formed in step 3. [4]

A large rectangular box with a solid black border. Inside the box, there are 25 horizontal dotted lines spaced evenly down the page, providing a guide for handwriting practice.

1. (a) 10 and 11

(b) 6

2. (a)
- (i) 4 cm
 - (ii) 8 cm
 - (iii) 12 cm

(b) $4n$

(c) We have

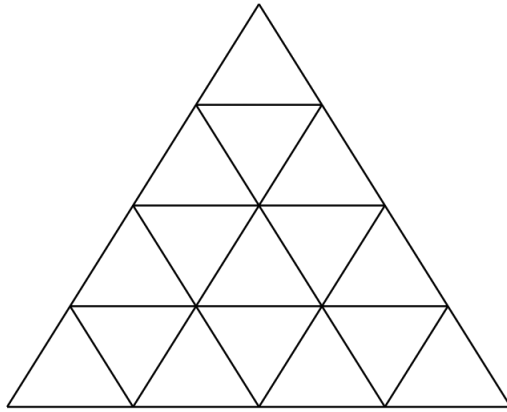
$$4n = 36$$

So

$$n = 9 \text{ cm}$$

3. (a) 64, 81, 100
(b) 21, 34, 55
(c) 36, 45, 55

4. (a)



(b)

Step	1	2	3	4	5	6
Sticks	3	9	18	30	45	63

(c) The difference between adjacent numbers in the bottom row is increasing by 3 e.g.

$$9 - 3 = 6$$

$$18 - 9 = 9$$

$$30 - 18 = 12$$

$$45 - 30 = 15$$

$$63 - 45 = 18$$

(d) There are 9 triangles with a side length of 1.

There are 3 triangles with a side length of 2.

There is 1 triangle with a side length of 3.

So there are 13 triangles in total.