

# Summer Term Maths Year 10

## Use the $n$ th term of a sequence

Day  
**4**

Week 12

**1** Write the first 5 terms of the following sequences.

- a)  $3n + 6$     **9, 12, 15, 18, 21**
- b)  $3n - 2$     **1, 4, 7, 10, 13**
- c)  $10 - n$     **9, 8, 7, 6, 5**
- d)  $4 + 0.5n$     **4.5, 5, 5.5, 6, 6.5**

**2** Find the  $n$ th term and the 20th term of the following sequences.

- a) 3, 5, 7, 9, ...     **$2n + 1$**                       **41**
- b) 1, 5, 9, 13, 17, ...     **$4n - 3$**                       **77**
- c) 3, 6, 9, 12, 15, ...     **$3n$**                               **60**
- d) 17, 12, 7, 2, -3, ...     **$22 - 5n$**                       **-78**
- e) 120, 101, 82, 63, ...     **$139 - 19n$**                       **-241**
- f) 13.4, 13.8, 14.2, 14.6, ...     **$0.4n + 13$**                       **21**

**3** Here are 3 sequences,

$$4n - 1$$

A

$$n + 5$$

B

$$100 - 2n$$

C

- a) What is the first term of each sequence?    **A is 3 B is 6 C is 98**
- b) Which sequence has the greatest 10th term?    **C**
- c) Do any of the sequences contain the number 71? Which ones?    **A and B**

**4** Is the number 105 in the following sequence given by the formulae  $5n + 4$ ?  
How do you know?

$$5n + 4 = 105$$

$$n = 20.2$$

**No as  $n$  is not an integer**

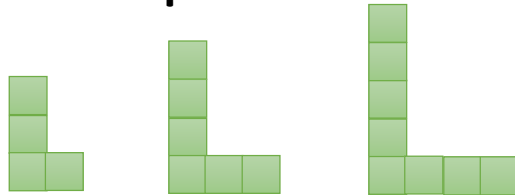
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5 Here is a sequence.



How many squares make up the 15<sup>th</sup> shape? Explain your method.

32 using the  $n$ th term rule,  $2n+2$

6



The 8<sup>th</sup> term of the sequence  $4n + 7 = 39$ . This means the 16<sup>th</sup> term is 78.

Explain why Dexter might think this.

What mistake has he made? He doubled the answer. He should have done  $4 \times 16 + 7$  to get 71

7 Complete the table.

First term	Common difference	$n$ th term	49 <sup>th</sup> term
7	3	$4 + 3n$	151
$q$	4	$5 + 4n$	201
38	2	$36 + 2n$	134

8 A shape is made by joining regular hexagons as shown below. The hexagons have a side length of 0.3 cm. How many hexagons are required for the shape to have a perimeter of 36.6 cm? 30

