

Examples



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Workout

Question 1: Find the  $n^{\text{th}}$  term for each of the following sequences

- |                                |                            |                            |
|--------------------------------|----------------------------|----------------------------|
| (a) 5, 8, 11, 14, ... ..       | (b) 9, 14, 19, 24, ... ..  | (c) 1, 3, 5, 7, ... ..     |
| (d) 10, 14, 18, 22, ... ..     | (e) 2, 7, 12, 17, ... ..   | (f) 3, 9, 15, 21, ... ..   |
| (g) 11, 31, 51, 71, ... ..     | (h) 20, 23, 26, 29, ... .. | (i) 1, 7, 13, 19, ... ..   |
| (j) 100, 125, 150, 175, ... .. | (k) 13, 22, 31, 40, ... .. | (l) 1.5, 2, 2.5, 3, ... .. |

Question 2: Find the  $n^{\text{th}}$  term for each of the following sequences

- |                               |                                |                            |
|-------------------------------|--------------------------------|----------------------------|
| (a) 10, 7, 4, 1, ... ..       | (b) 6, 4, 2, 0, ... ..         | (c) 9, 4, -1, -6, ... ..   |
| (d) 20, 10, 0, -10, ... ..    | (e) 5, -1, -7, -13, ... ..     | (f) 5, 4, 3, 2, ... ..     |
| (g) -6, -13, -20, -27, ... .. | (h) -10, -13, -16, -19, ... .. | (i) 2.5, 2, 1.5, 1, ... .. |

Question 3: Find the 100<sup>th</sup> term for each sequence in Questions 1 and 2.

Question 4: The  $n^{\text{th}}$  term for some sequences are given below.  
Find the first 5 terms for each sequence.

- |                |               |                |
|----------------|---------------|----------------|
| (a) $5n + 3$   | (b) $2n + 9$  | (c) $3n - 2$   |
| (d) $10n - 6$  | (e) $9n + 10$ | (f) $n + 8$    |
| (g) $-7n + 20$ | (h) $50 - 5n$ | (i) $3.5n + 4$ |

Question 5:

- (a) Is 205 a term in the sequence 1, 5, 9, 13, ... .. ?  
(b) Is 200 a term in the sequence 4, 10, 16, 22, ... .. ?  
(c) Is 1000 a term in the sequence 50, 65, 80, 95, ... .. ?  
(d) Is 999 a term in the sequence 11, 20, 29, 38, ... .. ?  
(e) Is 458 a term in the sequence 5, 12, 19, 26, ... .. ?

Question 6: Which term in the sequences below is the first to be greater than 250?

(a) 9, 13, 17, 21, ... ..

(b) 2, 10, 18, 26, ... ..

(c) 1, 7, 13, 19, ... ..

Question 7: Find the  $n^{\text{th}}$  term for each of the following sequences

(a)  $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}, \frac{7}{8}, \dots \dots$

(b)  $\frac{9}{11}, \frac{13}{16}, \frac{17}{21}, \frac{21}{26}, \dots \dots$

(c)  $\frac{3}{7}, \frac{6}{12}, \frac{9}{17}, \frac{12}{22}, \dots \dots$

(d)  $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \dots \dots$

(e)  $\frac{20}{21}, \frac{25}{32}, \frac{30}{43}, \frac{35}{54}, \dots \dots$

(f)  $\frac{99}{100}, \frac{97}{95}, \frac{95}{90}, \frac{93}{85}, \dots \dots$

Question 8: Find the 20<sup>th</sup> term for each of the sequences in Question 7.

### Apply

Question 1: Calculate the difference between the 10<sup>th</sup> term and 50<sup>th</sup> term of the sequence 9, 14, 19, 24, ... ..

Question 2: Calculate the sum of the 100<sup>th</sup> term and 200<sup>th</sup> term of the sequence 6, 15, 24, 33, ... ..

Question 3: Calculate the difference between the 30<sup>th</sup> term and 60<sup>th</sup> term of the sequence 8, 3, -2, -7, ... ..

## Sequences: nth term

Videos 288, 289 on [www.corbettmaths.com](http://www.corbettmaths.com)

Question 4: Here are the nth terms of 4 sequences.

Sequence 1	nth term	$4n + 3$
Sequence 2	nth term	$7n + 1$
Sequence 3	nth term	$14n$
Sequence 4	nth term	$8n - 1$

For each sequence state whether the numbers in the sequence are

- A Always multiples of 7
- S Sometimes multiples of 7
- N Never multiples of 7

Sequence 1 ..... Sequence 2 ..... Sequence 3 ..... Sequence 4 .....

Question 5: Can you spot any mistakes?

A sequence of numbers is shown below.

$+7$   $+7$   $+7$   
 8    15    22    29    ...    ...

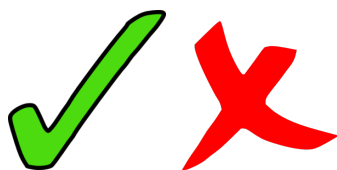
(a) Find an expression for the  $n$ th term of the sequence.

$n + 7$   
.....  
(2)

(b) Explain why 96 will not be a term in this sequence.

$96$  is not a multiple of  $7$   
.....  
.....  
(2)

Answers



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