

Workout

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

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|--------------------------------|----------------------------|----------------------------|
| (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^{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 100th term for each sequence in Questions 1 and 2.

Question 4: The n^{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, ?

Sequences: nth term

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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^{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 20th term for each of the sequences in Question 7.

Apply

Question 1: Calculate the difference between the 10th term and 50th term of the sequence 9, 14, 19, 24,

Question 2: Calculate the sum of the 100th term and 200th term of the sequence 6, 15, 24, 33,

Question 3: Calculate the difference between the 30th term and 60th term of the sequence 8, 3, -2, -7,

Sequences: nth term

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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)