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101. Sequences - The Nth Term

Practice Questions:

1. The nth term of a sequence is 3n + 2. Write down the first five terms.

2. The nth term of a sequence is 7 – 2n. Write down the first five terms.

3. The nth term of a sequence is 4n – 1. Is 119 in the sequence? Solve using algebra..

4. The nth term of a sequence is 25 – 5n. Is –30 in the sequence? Solve using algebra..

5. The sequence 2, 5, 8, 11, … is given. Find its nth term.

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Practice Questions:

6. The sequence –1, 3, 7, 11, … is given. Find its nth term.

7. The sequence –4, –1, 2, 5, … is given. Find its nth term.

8. The sequence 30, 25, 20, 15, … is given. Find its nth term.

9. The sequence –3, –7, –11, –15, … is given. Find its nth term.

10. The sequence 50, 40, 30, 20, … is given. Find its nth term.

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Scenario Questions:

1. A bus company charges £2 for the first ticket and then £3 more for each extra ticket bought. The cost of the nth ticket is given by $3n - 1$. Write down the cost of the first five tickets.

2. A staircase is built so that the first (top) step is 70 bricks high. Each step below drops by 2 bricks. The number of bricks in the nth step is given by $72 - 2n$. Write down the number of bricks in the first five steps.

3. A sequence models the number of seats in a row of a theatre. The nth term is given by $5n + 4$. Decide whether a row could contain 119 seats. Show your working.

4. A water tank is drained at a steady rate. The volume in litres left after n minutes is given by $42 - 5n$. Decide whether the tank could contain 30 litres after some whole number of minutes.

5. A sequence shows the number of chairs around square tables joined in a row. For 1 table there are 4 chairs, for 2 tables there are 7, for 3 tables there are 10. Find the nth term for the number of chairs.

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Scenario Questions:

6. A climbing frame is built with blocks. The first layer has 1 block, the second 4, the third 7, the fourth 10. Find the nth term for the number of blocks.

7. A lift can move up floors in a building. It stops at floors –4, 2, 8, 14, … Find the nth term for the sequence of floors.

8. A swimming pool is emptied at a steady rate of 5 litres per minute, starting at 30 litres. The amounts left are 30, 25, 20, 15, … Find the nth term for the amount left.

9. A freezer cools by 4°C each hour, starting at 6°C. The temperatures are 6, 2, –2, –6, … Find the nth term for the temperature.

10. A shop reduces the price of a jacket by £10 each day. The prices are 50, 40, 30, 20, …
Find the nth term for the price.

ANSWERS

Topic 101. Sequences - The Nth Term

Practice Questions:

1. 5, 8, 11, 14, 17
2. 5, 3, 1, −1, −3
3. Yes, n = 30
4. Yes, n = 11
5. 3n − 1

6. 4n − 5
7. 3n − 7
8. 35 − 5n
9. 1 − 4n
10. 60 − 10n

Scenario Questions:

1. £2, £5, £8, £11, £14
2. 70, 68, 66, 64, 62
3. Yes (n = 23)
4. No (32, 27)
5. 3n + 1

6. 3n − 2
7. 6n − 10
8. 35 − 5n
9. 10 − 4n
10. 60 − 10n