

Arithmetic Sequences

- 1 Find the n th term of the following arithmetic sequences:
 - i. 11, 16, 21, 26, ...
 - ii. 30, 37, 44, 51, ...
 - iii. 31, 27, 23, 19, ...
 - iv. 19, 16, 13, 10, ...
- 2 Find the 100th term of the following sequence:

8, 17, 26, 35, ...
- 3 Which term of the following sequence is equal to 147?

3, 12, 21, 30, ...
- 4 Which term of the following sequence is equal to 234?

10, 17, 24, 31, ...
- 5 Which term of the following sequence is equal to -271?

29, 23, 17, 11, ...
- 6 In an arithmetic sequence the second term is 8 and the eighth term is 38. What is the value of the first term, and the common difference?
- 7
 - a Find the n th term of the arithmetic sequence

7, 11, 15, 19, ...
 - b Which term of this sequence is equal to 463?
- 8 How many terms are in the following sequences:
 - i. 103, 100, 97, ..., 1
 - ii. 3, 10, 17, ..., 38
 - iii. 1020, 1001, 982, ..., 583
 - iv. 7, 11, 15, ..., 51
- 9
 - a Find the n th term of the arithmetic sequence

-4, -11, -18, -25, ...
 - b Which term of this sequence is equal to -802?
- 10 In an arithmetic sequences the first term is 9 and the 20th term is 104. What is the common difference, and the n th term?
- 11 In an arithmetic sequences the common difference is 5 and the seventh term is 41. What is the first term of the sequence, and what is the n th term?
- 12 In an arithmetic sequence the third term is 27 and the sixth term is 48. What are the values of a and d ?
- 13 The fourth term of an arithmetic sequence is 5 and the eleventh term is -23. What are the values of a and d ?
- 14 In an arithmetic sequence the fifth term is 30 and the ninth term is 18. What are the values of the first term and the common difference?
- 15 In an arithmetic sequence the twelfth term is 15 and the tenth term is 9. Find the value of the first term and the common difference.
- 16 The first term of an arithmetic sequence is 3 and the one hundredth term is 307. What is the value of the common difference?
- 17 A boy invests £1 in the first week of the year, £1.20 the next, £1.40 the next and so on. How much will he invest in the last week of the year?
- 18 The 4th, 5th and 6th terms of an arithmetic sequence are $2x + 1$, $3x$ and $x + 20$. Find x and show that the first term of the sequence is -3.
- 19 The first four terms of an arithmetic sequence are 2, $c - d$, $2c + d + 7$ and $c - 3d$ respectively, where c and d are constants. Find c and d .
- 20 An arithmetic sequence follows the general rule $U_n = 50 - 3n$. Show that this sequence has exactly 16 positive terms.
- 21 A pipeline is to be constructed under a lake. It is calculated that the first mile will take 15 days to connect. Each further mile will take 3 days longer than the one before, so the 1st, 2nd and 3rd miles will take 15, 18 and 21 days. What is the n th term of this sequence?

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