

Exercise 3.2

- For each of the following arithmetic series, write down the term indicated in brackets, and the n^{th} term.

(a) $7 + 11 + 15 + \dots$ (7 th term)	(b) $18 + 11 + 4 + \dots$ (6 th term)
(c) $-7 - 5 - 3 - \dots$ (20 th term)	(d) $3 + 3\frac{2}{3} + 4\frac{1}{3} + \dots$ (15 th term)
- Find the sum of the terms of each of the following series.

(a) $5 + 9 + 13 + \dots + 81$	(b) $85 + 82 + 79 + \dots + 13$
(c) $-22 - 17 - 12 - \dots + 68$	(d) $1 + 1\frac{3}{5} + 2\frac{1}{5} + \dots + 18\frac{2}{5}$
- Find the sum of each of the following arithmetic series.

(a) $3 + 8 + 13 + \dots$ to 18 th term	(b) $4 + 7\frac{1}{2} + 11 + \dots$ to 20 th term
(c) $21 + 18 + 15 + \dots$ to 12 th term	(d) $-15 - 9 - 3 - \dots$ to 10 th term
- Find the sum of the arithmetic series $-11 - 7 - 3 + 1 + \dots$ from the 11th term to the 20th term.
- Find the sum of the odd numbers between 0 and 500 which are divisible by 7.
- Find the sum of the numbers between 1 and 200 inclusive, which are not divisible by 6.
- The first and last terms of an arithmetic series are 29 and 179 respectively. If the total number of terms is 25, find the common difference and the sum of the series.
- The second and seventh terms of an arithmetic series are -5 and 10 respectively. Find the eighth term and the smallest value of n such that the sum of n terms exceeds 500.
- In an arithmetic series, the sum of the first 15 terms is 615, and the 13th term is 6 times the 2nd term. Find the first three terms.
- The sum of the first n terms of a series is $3n^2 + n$. Show that the series is an arithmetic progression, and find the first term and common difference.
- In an arithmetic progression, the sum of the first $2n$ terms is equal to the sum of the following n terms. If the first term is 12 and common difference is 3, find the value of n .
- Show that the sum of the odd integers from 1 till $(2n - 1)$ is n^2 . Find the smallest value of n such that the sum of n terms exceeds 4 000.
- Find the arithmetic mean of each of the following.

(a) 3 and 27	(b) 3 and -27
(c) $\frac{1}{3}$ and $\frac{1}{27}$	(d) $\log_{10} 3$ and $\log_{10} 27$

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| (a) $31, 4n + 3$ | (b) $-17, 25 - 7n$ |
| (c) $31, 2n - 9$ | (d) $12\frac{1}{3}, \frac{1}{3}(2n + 7)$ |
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|---------|-----------|
| (a) 860 | (b) 1 225 |
| (c) 437 | (d) 291 |
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|---------|---------|
| (a) 819 | (b) 745 |
| (c) 54 | (d) 120 |
- 470
- 9072
- $6\frac{1}{4}, 2600$
- 6, 11, 16
- 7
- | | |
|--------------------|--------------|
| (a) 15 | (b) -12 |
| (c) $\frac{5}{27}$ | (d) $\log 9$ |