



Rule

A finite arithmetic progression is called an **arithmetic series**. The sum of the first *n* terms in an arithmetic progression can be calculated in two ways:

$$S_n = \frac{n}{2}[2a + (n-1)d] \text{ or } S_n = \frac{n}{2}[a+l]$$

where *a* is the first term

l is the last term *d* is the common difference between terms.

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Questions

Find the sum of each of the following arithmetic series.		Α	945
		С	18
1	The first 5 terms of 6, 10, 14,	Е	11 or 30
2	The first 30 terms of 17, 18, 19,	F	-594
3	The first 24 terms of 100, 95, 90,	י ה	1326
4	The first 51 terms of $\frac{1}{2}$, 1, $1\frac{1}{2}$,	н	6975
5	The first 27 terms of 43, 38, 33,	I	25 284
6	$14 + 11 + 8 + \dots - 1 - 6$	L	663
7	$34 + 45 + 56 + \dots + 276$	М	-22 041
8	$85 + 78 + 71 + \dots - 559$	Ν	$27n^2 - 42n + 1$
9	$-5 + -2\frac{1}{3} + \frac{1}{3} + \dots + 83$	0	2600
10	All positive even numbers less than 200	Ρ	-90
11	All numbers between 148 and 302 that are	R	3565
	divisible by 5	S	$-6n^2 + 53n - 9$
12	The first $3n - 2$ terms of 1, 7, 13,	т	9900
13	The first $n + 1$ terms of 3, 5, 7,	U	$n^2 + 4n + 3$
14	The first $2n - 5$ terms of 10, 7, 4,	v	70
15	How many terms of the series $5 + 8 + 11 +$	w	1020
	need to be added together to equal 349?	v	-11
16	How many terms of the series $120 + 114 + 108 +$ need to be added together to equal 990?	•	**
17	If the 1st term of an arithmetic sequence is 43		

and the 12th term is -12, find the sum of the first 20 terms.

- **18** If the 3rd term of an arithmetic sequence is 1941 and the 22nd term is 1371, find the sum of the first 14 terms.
- **19** If the 7th term of an arithmetic sequence is 15 and the 11th term is 23, find the sum of the first 50 terms.

Solutions

- 6
- 5