



## 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

QUESTIONS	0010110115
Find the sum of each of the following arithmetic series.	A 945
<b>1</b> The first 5 terms of 6, 10, 14,	<b>C</b> 18 <b>E</b> 11 or 30
<b>2</b> The first 30 terms of 17, 18, 19,	<b>F</b> -594
<b>3</b> The first 24 terms of 100, 95, 90,	<b>G</b> 1326
<b>4</b> The first 51 terms of $\frac{1}{2}$ , 1, $1\frac{1}{2}$ ,	<b>H</b> 6975
<b>5</b> The first 27 terms of 43, 38, 33,	I 25 284
<b>6</b> $14 + 11 + 8 + \dots - 1 - 6$	<b>L</b> 663
<b>7</b> $34 + 45 + 56 + \dots + 276$	<b>M</b> −22 041
<b>8</b> $85 + 78 + 71 + \dots - 559$	<b>N</b> $27n^2 - 42n + 16$
<b>9</b> $-5 + -2\frac{1}{3} + \frac{1}{3} + \dots + 83$	<b>O</b> 2600
<b>10</b> All positive even numbers less than 200	<b>P</b> −90
<b>11</b> All numbers between 148 and 302 that are divisible by 5	<b>R</b> 3565
<b>12</b> The first $3n - 2$ terms of 1, 7, 13,	<b>S</b> $-6n^2 + 53n - 95$ <b>T</b> 9900
<b>13</b> The first $n + 1$ terms of 3, 5, 7,	<b>U</b> $n^2 + 4n + 3$
<b>14</b> The first $2n - 5$ terms of 10, 7, 4,	<b>V</b> 70
<b>15</b> How many terms of the series $5 + 8 + 11 +$ need to be added together to equal 549?	<b>W</b> 1020
<b>16</b> How many terms of the series $120 + 114 + 108 + \dots$ need to be added together to equal 990?	<b>Y</b> -11
<b>17</b> 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