

US5256 LESSON TWO: ARITHMETIC AND GEOMETRIC SERIES

- For each series:
1. calculate the next term,
 2. write the expression for the n th term;
 3. calculate T_{10}
 4. calculate the sum of the first 23 terms

a.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	4	7	10	13		$T_{(n)} =$		

b.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	5.4	16.7	28	39.3		$T_{(n)} =$		

c.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	12	6.5	1	-4.5		$T_{(n)} =$		

d.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	7	13	19	25		$T_{(n)} =$		

2. What is the common difference for a series with $T_8 = 32$ and $T_{13} = 67$?
3. Write the expression for a series with $T_1 = 12.4$ and $T_5 = 26$
4. Calculate the first four terms of a series with $T_1 = 5$ and $\sum_{1}^{10} = 59$
5. What is the first term of a series with $T_{18} = 14$ and $T_{24} = -7$?
6. For the series with expression $T_n = 3.5 + (n - 1)5.4$, what is the sum of T_{12} to T_{19} ?

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a.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	4	8	16	32		$T_{(n)}=$		

b.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	5.4	-5.4	5.4	-5.4		$T_{(n)}=$		

c.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	12	36	108	324		$T_{(n)}=$		

d.

n	1	2	3	4	5	n	10	\sum_{1}^{10}
$T_{(n)}$	4	-10	25	-63		$T_{(n)}=$		

2. What is the common ratio for a series with $T_3 = 32$ and $T_6 = 512$?
3. Write the expression for a series with $T_1 = 12.4$ and $T_5 = 21420.75$
4. Calculate the sum of the first 40 terms of:

a. $3 + 6 - 12 + 24 - \dots$ _____

b. $15 + 45 + 135 + 405 + \dots$ _____

c. $\frac{2}{5} + \frac{6}{10} + \frac{18}{20} + \frac{54}{40} + \dots$ _____

5. Write the first four term of a series with $T_1 = 14$ and $S_{\infty} = 18.67$

6. Each day, Jack's beanstalk has gained $\frac{2}{3}$ of the previous day's growth. If it grew 20 metres in its first day after germination, how tall was it after two weeks?