

Sequence and Series Review

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Find the term named in the problem and the explicit formula.

1) 9, 39, 69, 99, ...

Find a_{25} **Given the explicit formula for an arithmetic sequence find the common difference and the term named in the problem.**

2) $a_n = -116 + 100n$

Find a_{25} **Given the recursive formula for an arithmetic sequence find the common difference, the term named in the problem, and the explicit formula.**

3) $a_n = a_{n-1} + 5$

$a_1 = -3$

Find a_{24} **Given the first term and the common difference of an arithmetic sequence find the term named in the problem and the explicit formula.**

4) $a_1 = -28, d = 4$

Find a_{28}

Given the second term and the common difference of an arithmetic sequence find the term named in the problem and the explicit formula.

5) $a_2 = 26, d = -2$

Find a_{24}

Given a term in an arithmetic sequence and the common difference find the term named in the problem and the explicit formula.

6) $a_{29} = 184, d = 8$

Find a_{38}

Find the missing term or terms in each arithmetic sequence.

7) ..., 19, _____, _____, _____, _____, _____, 1219, ...

Evaluate the related series of each sequence.

8) 3, 5, 7, 9, 11, 13

Evaluate each arithmetic series described.

9) $a_1 = 5$, $a_n = 21$, $n = 9$

10) $a_1 = 17$, $d = 3$, $n = 45$

11) $12 + 21 + 30 + 39 \dots$, $n = 9$

12) $\sum_{m=3}^{13} (5m + 1)$

Determine the number of terms n in each arithmetic series.

13) $a_1 = 31$, $a_n = 61$, $S_n = 276$

Find the term named in the problem and the explicit formula.

14) -3 , -12 , -48 , -192 , ...
Find a_9

Given the explicit formula for a geometric sequence find the term named in the problem.

15) $a_n = -3 \cdot (-3)^{n-1}$

Find a_{12}

Given the first term and the common ratio of a geometric sequence find the term named in the problem and the explicit formula.

16) $a_1 = 3, r = 2$

Find a_{12}

Given the second term and the common ratio of a geometric sequence find the term named in the problem and the explicit formula.

17) $a_2 = -12, r = 3$

Find a_{11}

Given a term in a geometric sequence and the common ratio find the term named in the problem and the explicit formula.

18) $a_2 = 9, r = -3$

Find a_{11}

Given two terms in a geometric sequence find the term named in the problem and the explicit formula.

19) $a_6 = -96$ and $a_3 = -12$

Find a_{11}

Find the missing term or terms in each geometric sequence.

20) ..., -2, _____, _____, _____, _____, -2048, ...

Evaluate each geometric series described.

21) $4 - 8 + 16 - 32 \dots$, $n = 7$

Evaluate the related series of each sequence.

22) 4, 8, 16, 32

Evaluate each geometric series described.

23) $a_1 = -0.25$, $a_n = -1024$, $r = 4$

$$24) a_1 = 4, a_8 = -8748, r = -3$$

$$25) a_1 = -3, r = \frac{1}{2}, n = 8$$

$$26) 3 - 6 + 12 - 24 \dots, n = 9$$

$$27) \sum_{m=1}^8 80 \cdot \left(\frac{1}{2}\right)^{m-1}$$

Evaluate each infinite geometric series described.

$$28) -5 - 1 - \frac{1}{5} - \frac{1}{25} \dots$$

$$29) \sum_{k=1}^{\infty} 3 \cdot \left(\frac{1}{5}\right)^{k-1}$$

Determine the common ratio of the infinite geometric series.

$$30) a_1 = 1.8, S = 4.5$$

Answers to Sequence and Series Review (ID: 2)

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| 1) $a_{25} = 729$
Explicit: $a_n = -21 + 30n$ | 2) Common Difference: $d = 100$
$a_{25} = 2384$ | 3) Common Difference: $d = 5$
$a_{24} = 112$
Explicit: $a_n = -8 + 5n$ |
| 4) $a_{28} = 80$
Explicit: $a_n = -32 + 4n$ | 5) $a_{24} = -18$
Explicit: $a_n = 30 - 2n$ | 6) $a_{38} = 256$
Explicit: $a_n = -48 + 8n$ |
| 7) 219, 419, 619, 819, 1019 | 8) 48 | 9) 117 |
| 10) 3735 | 11) 432 | 12) 451 |
| 13) 6 | 14) $a_9 = -196608$
Explicit: $a_n = -3 \cdot 4^{n-1}$ | 15) $a_{12} = 531441$
Explicit: $a_n = 3 \cdot 2^{n-1}$ |
| 16) $a_{12} = 6144$
Explicit: $a_n = 3 \cdot 2^{n-1}$ | 17) $a_{11} = -236196$
Explicit: $a_n = -4 \cdot 3^{n-1}$ | 18) $a_{11} = -177147$
Explicit: $a_n = -3 \cdot (-3)^{n-1}$ |
| 19) $a_{11} = -3072$
Explicit: $a_n = -3 \cdot 2^{n-1}$ | 20) -8, -32, -128, -512 | 21) 172 |
| 22) 60 | 23) -1365.25 | 24) -6560 |
| 25) $-\frac{765}{128}$ | 26) 513 | 27) $\frac{1275}{8}$ |
| 28) $-\frac{25}{4}$ | 29) $\frac{15}{4}$ | 30) 0.6 |