

State a_1 and r for each arithmetic sequence.

1) $a_n = 5(2)^{n-1}$

2) $1, \sqrt{3}, 3, 3\sqrt{3}, \dots$

3) $a_n = -3\left(-\frac{1}{10}\right)^{n-1}$

Write each geometric sequence in explicit form.

4) $4, 12, 36, \dots$

5) $20, 16, 12.8, \dots$

6) $-\frac{1}{4}, \frac{1}{2}, -1, \dots$

7) How many terms are in the geometric sequence $4, 2, 1, \dots, \frac{1}{32}$?

8) If $a_2 = \frac{1}{4}$ and $a_7 = -\frac{1}{972}$, find r and a_1 , then write the **explicit form** for this geometric sequence.

9) Find the 7th term of the geometric sequence & the explicit form with the given terms, $a_2 = 768$ and $a_4 = 48$.

10) The common ratio is 3 and the third term is $\frac{4}{3}$. What is the fifth term?

Write the following geometric sequence in Sigma Notation.

11) $2, 6, 18, 54, 162, 486, 1458$

12) $1, -\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \dots, -\frac{1}{512}$

13) $1, x^{2/7}, x^{4/7}, x^{8/7}, \dots, x^{16/7}$

Find the sum of each geometric series.

14) $n = 7, r = -4, a_1 = 5$

15) $n = 8, r = \frac{1}{2}, a_1 = 10$

16) $n = 11, a_2 = \frac{10}{3}, a_4 = \frac{3}{10}$

[Keep the ratio positive]

17) $\sum_{n=1}^8 2(-2)^{n-1}$

18) $\sum_{n=2}^{10} (3)^n$

19) $\sum_{n=1}^8 6\left(\frac{9}{10}\right)^{n-1}$

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20) The sum of the first 15 terms of the series, $1 + 3 + 9 + 27 + \dots$

21) The sum of the first 10 terms of the series, $3 - \frac{3}{2} + \frac{3}{4} - \frac{3}{8} + \dots$

22) Determine the number of terms of k in the following geometric series, $-4 + 16 - 64 + 256 + \dots, S_n = 52428$

23) The partial sum total is 63. There are 6 terms in this geometric sequence, $a_3 = -12$, and the common ratio is -2 . What is the first term?