

Finite Geometric Series

Evaluate the related series of each sequence.

1) 2, 12, 72, 432

2) -1, 5, -25, 125

3) -2, 6, -18, 54, -162

4) -2, -12, -72, -432, -2592

Evaluate each geometric series described.

5) $\sum_{k=1}^7 4^{k-1}$

6) $\sum_{i=1}^8 (-6)^{i-1}$

7) $\sum_{i=1}^9 2^{i-1}$

8) $\sum_{m=1}^9 -2^{m-1}$

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

10) $\sum_{n=1}^9 4 \cdot 3^{n-1}$

11) $\sum_{n=1}^{10} 4 \cdot (-3)^{n-1}$

12) $\sum_{n=1}^9 (-2)^{n-1}$

13) $1 + 2 + 4 + 8 \dots, n = 6$

14) $2 - 10 + 50 - 250 \dots, n = 8$

15) $1 - 4 + 16 - 64 \dots, n = 9$

16) $-2 - 6 - 18 - 54 \dots, n = 9$

17) $1 - 5 + 25 - 125 \dots, n = 7$

18) $-3 - 6 - 12 - 24 \dots, n = 9$

19) $a_1 = 4, a_n = 1024, r = -2$

20) $a_1 = 4, a_n = 8748, r = 3$

Determine the number of terms n in each geometric series.

21) $a_1 = -2, r = 5, S_n = -62$

22) $a_1 = 3, r = -3, S_n = -60$

23) $a_1 = -3, r = 4, S_n = -4095$

24) $a_1 = -3, r = -2, S_n = 63$

25) $-4 + 16 - 64 + 256 \dots, S_n = 52428$

26) $\sum_{m=1}^n -2 \cdot 4^{m-1} = -42$