

Arithmetic and Geometric sequence & series

Rewrite each series using sigma notation.

1) $5 + 25 + 125 + 625 + 3125 + 15625$

2) $3 + 6 + 9 + 12 + 15 + 18$

Find the sum of each arithmetic series described.

3) $a_1 = 0, a_n = 12, n = 5$

4) $a_1 = 34, a_n = 250, n = 25$

Find the sum of each arithmetic series described.

5) $7 + 10 + 13 + 16\dots, n = 15$

6) $6 + 9 + 12 + 15\dots, n = 13$

Determine the number of terms n in each arithmetic series.

7) $a_1 = 23, a_n = 55, S_n = 351$

8) $a_1 = 17, d = 10, S_n = 513$

Find the sum of each geometric series described.

9) $a_1 = -3, a_n = 6561, r = -3$

10) $a_1 = -3, a_n = -49152, r = 4$

Find the common ratio and the term named in the problem.

11) $-2, -6, -18, -54, \dots$
Find a_{11}

12) $-1, 2, -4, 8, \dots$
Find a_{10}

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

13) $a_1 = 4, r = 4$

14) $a_1 = -2, r = -6$

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

15) $a_2 = -12, r = -4$
Find a_{10}

16) $a_2 = -10, r = 5$
Find a_9

Find the sum of each geometric series described.

17) $a_1 = 3, a_7 = 46875, r = 5$

18) $a_1 = 4, a_7 = 62500, r = -5$

19) $-1 - 2 - 4 - 8 \dots, n = 6$

20) $-1 + 5 - 25 + 125 \dots, n = 8$

Answers to Arithmetic and Geometric sequence & series

1) $\sum_{a=1}^6 5^a$

5) 420

9) 4920

12) Common Ratio: $r = -2$
 $a_{10} = 512$

15) $a_{10} = -786432$

19) -63

2) $\sum_{n=1}^6 3n$

6) 312

10) -65535

13) $a_n = 4 \cdot 4^{n-1}$

16) $a_9 = -781250$

20) 65104

3) 30

7) 9

11) Common Ratio: $r = 3$

$a_{11} = -118098$

14) $a_n = -2 \cdot (-6)^{n-1}$

17) 58593

4) 3550

8) 9

18) 52084