

I. Find S_n for each geometric series described.

1.) $a_1 = -6$, $r = -3$, $n = 7$

2.) $a_1 = 2$, $a_6 = 64$, $r = 2$

3.) $64 - 96 + 144 - \dots$ to 8 terms

4.) $-7 - 14 - 28 - \dots - 3,584$

5.) $a_7 = -192$ and $r = -2$

6.) $a_1 = \frac{1}{3}$ and $a_{10} = 6,561$

7.) $a_1 = 160$, $a_{12} = -\frac{5}{64}$, $r = -\frac{1}{2}$

8.) $a_1 = -9$, $r = \frac{2}{3}$, $n = 4$

9.) $\frac{1}{9} - \frac{1}{3} + 1 - \dots$ to 6 terms

10.) $162 + 54 + 18 + \dots + \frac{2}{3}$

11.) $a_9 = -3,125,000$ and $a_1 = -8$

12.) $r = \frac{1}{4}$ and $a_6 = 36$

13.) $a_1 = 3$, $a_n = 1,029$, $r = 7$

14.) $a_3 = -36$, $a_6 = -972$, $n = 10$

II. Find the indicated part of a (finite) geometric series given the series sum and other info.

15.) $S_n = 1,530$, $r = 2$, $n = 8$; find a_1

16.) $S_n = 492.1875$, $a_6 = 7.8125$, and $r = \frac{1}{2}$; find a_1

17.) $S_n = 1,062,880$, $r = 3$, $a_1 = 4$; find n

18.) $S_n = 249.92$, $r = 0.2$, $n = 5$; find a_3

III. Find the sum of each sigma notation (using your calculator). Make sure to write your calc steps.

19.) $\sum_{n=1}^6 \left(\frac{1}{2}\right)^n$

20.) $\sum_{n=3}^{10} 4(-3)^{n-1}$

21.) $\sum_{n=2}^7 \frac{1}{4}(2)^{n-1}$

22.) Find the sum of the following using THREE METHODS: $\sum_{n=1}^6 5 \cdot 2^{n-1}$

a.) Method # 1 – Sigma Notation by Hand

b.) Method # 2 – Sigma Notation using Calculator

c.) Method # 3 – Using the Geometric Series Formula