

Find the first 5 terms of the following sequences.

1. $a_n = \frac{(-1)^{n+1}}{n+1}$

2. $b_n = \frac{2^n}{(n-1)!}$

3. Write a formula for the n th term of each infinite sequence.

i) 9, 11, 13, 15

ii) $1, -\frac{1}{8}, \frac{1}{27}, -\frac{1}{64}, \dots$

4. Find the sum of the following series

$$\sum_{i=0}^6 i(i-2)(i-3)$$

5. Write the following series in summation notation.

$$\frac{1}{5} - \frac{1}{7} + \frac{1}{9} - \frac{1}{11} + \frac{1}{13}$$

6. Find the sum of each finite geometric series by using the formula for S_n . You can check your answer by actually adding up the sums.

$$9 + 3 + 1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27}$$

7. Write the infinite geometric series in summation notation, then find the sum, if possible. If not possible, state why.

i) $0.9 + 0.09 + 0.009 + \dots$

ii) $1.2 - 2.4 + 4.8 - 9.6 + \dots$

iii) (already in summation notation)

$$\sum_{i=1}^{\infty} 27(0.1)^i$$