

1. (4 points) Identify each of the following sequences as arithmetic, geometric, neither, or both. If a sequence is arithmetic or geometric, determine its common difference or ratio:

• $6, 0, -6, 0, 6, 0, -6, \dots$

• $2, -4, 8, -16, 32, -64, \dots$

• $5, \frac{3}{2}, -2, \frac{-11}{2}, -9, \dots$

• $25, 15, 9, \frac{27}{5}, \frac{81}{25}, \dots$

2. (4 points) An arithmetic sequence has fifth term 16 and eighth term 7. What is its second term?

3. (4 points) Find the sum of the finite arithmetic series $6 + 1 - 4 - 9 - 14 - 19 - \dots - 94$.

4. (3 points) Find the sum of the infinite geometric series $5 - 3 + \frac{9}{5} - \frac{27}{25} + \frac{81}{125} - \dots$