Sequences and Series: TIPS Assignment

SHOW ALL OF YOUR WORK.
NO MARKS WILL BE GIVEN TO “GUESS AND CHECK” SOLUTIONS OR SOLUTIONS THAT SIMPLY APPLY A RATIO OR DIFFERENCE REPEATEDLY (5 marks each)

1. The first 5 terms in a sequence are -7, -9, -13, -21, -37. Determine the recursive formula for the sequence.

2. The first 5 terms in a sequence are 4, -19, 50, -157, 464. Determine the next three terms in the sequence.

3. The arithmetic series 1 + 5 + 9 + ... + tₙ has a sum of 1770. How many terms does the series have?

4. The 10ᵗʰ term of an arithmetic series is 61. The sum of the first 37 terms is 4,255. Determine the 50ᵗʰ term.

BONUS (2 marks)

The first 5 terms in simplified form of a sequence are $\frac{-7}{6}, \frac{1}{4}, \frac{1}{24}, \frac{-5}{48}, \frac{3}{32}$. Determine the general term.