Quiz 1

Determine whether the following sequences are Arithmetic or Geometric:

1. (1 point) 4, 6, 8, 10, 12, ...  \textbf{Arithmetic}

2. (1 point) 2, 10, 50, 250, 1250, ...  \textbf{Geometric}

3. (1 point) 1, -3, 9, -27, 81, ...  \textbf{Geometric}

4. (1 point) 7, 4, 1, -2, -5, ...  \textbf{Arithmetic}

5. (1 point) -2, -1, 2, 7, 14, ...  \textbf{neither}

Find the next term in the sequence, and then find the \( n \)th term in the sequence \( (a_n) \). Give both the recursive and the closed form for \( a_n \).

6. (5 points)

\[
\begin{align*}
a_1 &= 3 \\
a_2 &= 9 = 3 + 6 \\
a_3 &= 15 = 3 + 6 \cdot 2 \\
a_4 &= 21 = 3 + 6 \cdot 3 \\
a_5 &= \underline{27} \\
\end{align*}
\]

\[
a_n = a_{n-1} + 6 \quad \text{(recursive form)}
\]

\[
a_n = \underline{6n - 3} \quad \text{(closed form)} \quad \leftarrow 3 + 6(n - 1)
\]