Name: _____

Directions: All questions require explanation in English sentences.

1. Find simple formulas for the following sums.

   (a) **[2 points]** $1 + 5 + 9 + \cdots + (4n - 3)$

   (b) **[2 points]** $\sum_{j=n}^{3n} 2j - 1$

(c) **[2 points] Caution!** Read carefully: $\sum_{j=1}^{n} 2^n$

2. **[2 points]** Prove the following or give a counter example: if A, B, and C are sets, $A \in B$, and $B \in C$, then $A \in C$.

3. **[2 points]** Complete the following sentence to give the definition of the term *subset*. A set A is a *subset* of a set B, denoted $A \subseteq B$ if **....**