Algebra II Name _____

Review Sequence & Series #2

1. Decide whether the following formula is explicit or recursive. Then find the first four terms of the sequence.

a. $a_n = 3n + 2$

b. $a_1 = 4$, $a_n = a_{n-1} + 7$

2. Write the terms of the series and evaluate the sum.

a. $\sum_{n=1}^{5} n^2 + 2$

b. $\sum_{k=4}^{9} (4 - k)$

3. The orchestra section of a theater has 25 seats in the front row, 27 seats in the second row, 29 seats in the third row and so on. The pattern continues until the twelfth row. After that, every row has the same number seats as row 12.

a. How many seats are in row 12?

b. The orchestra has 19 rows. How many seats are in the orchestra section?

4. Find the formula for the nth term and find the indicated term of the following sequences.

a. -16, -4, 8, 20, … find the 24^{th} term

b. $\frac{1}{12}, -\frac{1}{2}, 3, -18, \ldots$ find the 8^{th} term

5. A contractor must pay a penalty if work on a project is not completed on time. The penalty on the first day is $300. The penalty increases to $500 on the second day, to $700 on the third day and so on.

a. Write an explicit formula that describes the sequence.

b. The contractor accumulated a penalty of $4800. How many days after the due date was the project completed?

6. In an arithmetic sequence $a_{12} = 17$ and $a_6 = 71$, write the explicit and recursive formula for the nth term.

7. Find the following sums.

a. $4 + 11 + 18 + \ldots + 53$

b. $\sum_{n=1}^{37} 7n - 3$

c. $20 - 10 + 5 - 2.5 + \ldots$, $n = 9$

8. Find the missing terms in each sequence.

a. geometric. 1, _____, _____, 125, …

b. arithmetic. 3, _____, _____, 1.5, ….

9. In an geometric sequence $a_2 = 6$ and $a_6 = 486$, write the explicit and recursive formulas for the nth term.