Secondary Math III
Assignment 11.2
Finite Arithmetic Series

Name: _____
Period: _____

Use sigma notation to rewrite each finite series. Then calculate the given sum (you do not need to use the formula).

1. $4 + 8 + 12 + 16 + 20$; S_5

2. $-1 + (-5) + (-9) + (-13)$; S_4

3. $48 + 52 + 56 + 60 + \ldots$; S_7

4. $1.4 + 4.6 + 7.8 + 11 + \ldots$; S_6

Use Gauss's formula to find the sum of the series.

5. $\sum_{i=1}^{10}(3i-4)$

6. $\sum_{i=1}^{15}(-0.4i)$

7. $\sum_{i=1}^{17}(-2i-1)$

8. $\sum_{i=1}^{20}(1.2i-3)$

Given the explicit formula use Gauss' formula to find the sum of the series.

9. If $a_n = 4n - 3$, find S_{12}

10. If $a_n = -3n + 2$, find S_{17}

11. If $a_n = 3.5n + 2$, find S_{10}

12. If $a_n = \frac{1}{2}n$, find S_{50}

15. A military band marches in a formation consisting of 8 rows. The first row has 2 band members, and each successive row has 3 more band members than the previous row. Use the given information to answer each question.

a. Write an arithmetic series to represent the number of band members in the formation.

b. Write an explicit formula to calculate the number of band members in any given row. Then, use the explicit formula to verify that the last row has 23 band members or $a_8 = 23$.

c. Write the arithmetic series in sigma notation.

d. Use Gauss's formula to determine the total number of band members in the formation.

e. Determine the additional number of band members needed to create 4 more rows.

f. Determine the number of band members in the formation if the last row in the formation contains 44 members.