Name_____ Date_____ Period_____

ARITHMETIC SEQUENCES & SERIES WORKSHEET

Find a_n using $a_n = a_1 + d(n - 1)$

$$S_n = \frac{n(a_1 + a_n)}{2}$$

1. Write down the stated term and the nth term of the following arithmetic sequences
   a. 7, 11, 15, … (7^{th})
   c. 18, 11, 4, … (6^{th})
   b. -7, -5, -3, … (23^{rd})
   d. 3, 3 ½, 4, … (16^{th})

2. Find the sum of the following series. (hint: use the formula for arithmetic sequences first to find n)
   a. 5, 9, 13, …, 101
   c. 83, 80, 77, …, 5
   b. -17, -12, -7,…, 33
   d. 1, 1 ¼ , 1 ½, … 9 ¾

3. Find the sum of the following series.
   a. 4, 11, … to 16 terms
   c. 3, 8 ½, … to 20 terms
   b. 19, 13, … to 10 terms
   d. -9, -1, … to 8 terms

4. Find the sum of the first 100 odd numbers

5. Find the sum of the positive terms of the arithmetic sequence 85, 78, 71, …

6. The 10^{th} term of an arithmetic sequence is 10 and the sum of the first 10 terms is -35. Find the first term a_1, and the common difference, d, of the sequence.

7. How many terms of the arithmetic sequence {1,3,5,7,…} will give a sum of 961?

8. Jerry deposited $20,000 on an investment that will give $1,750 for every year that his money stays in the account. How much money will he have in his account by the end of year 8?

9. There is a stack of logs in the backyard. There are 15 logs in the 1^{st} layer, 14 in the second, 13 in the third, 12 in the fourth, and so on with the last layer having one log. How many logs are in the stack?

10. There are 20 rows of seats on a concert hall: 25 seats are in the 1^{st} row, 27 seats on the 2^{nd} row, 29 seats on the 3^{rd} row, and so on. If the price per ticket is $2,300, how much will be the total sales for a one-night concert if all seats are taken?