Secondary Math 3 Name_____

11.1 Arithmetic Sequences

Date_____ Period____

Determine if the sequence is arithmetic. If it is, find the common difference.

1) $-3,\ -15,\ -75,\ -375, \ldots$

2) $-14,\ -6,\ 2,\ 10, \ldots$

3) $30,\ 50,\ 70,\ 90, \ldots$

4) $28,\ 22,\ 16,\ 10, \ldots$

Given the explicit formula for an arithmetic sequence find the common difference, the first five terms, and the term named in the problem.

5) $a_n = -30 + 20n$
Find a_{31}

6) $a_n = 5 + 8n$
Find a_{23}

7) $a_n = -5 - 3n$
Find a_{35}

8) $a_n = -12 + 2n$
Find a_{34}

Given the recursive formula for an arithmetic sequence find the common difference, the first five terms, and the term named in the problem.

9) $a_n = a_{n-1} - 30$
$a_1 = -8$
Find a_{28}

10) $a_n = a_{n-1} - \frac{1}{3}$
$a_1 = \frac{10}{7}$
Find a_{39}

11) $a_n = a_{n-1} - 2.4$
$a_1 = -9.5$
Find a_{34}

12) $a_n = a_{n-1} - 4$
$a_1 = 29$
Find a_{40}

Write the explicit formula and recursive definition for each sequence. Then find the 52nd term in the sequence.

13) $-20,\ 180,\ 380,\ 580, \ldots$

14) $30,\ -70,\ -170,\ -270, \ldots$

15) $11,\ 6,\ 1,\ -4, \ldots$

16) $8,\ 10,\ 12,\ 14, \ldots$

Find the missing term or terms in each arithmetic sequence.

17) $\ldots,\ -6,\ \_\_\_,\ 14,\ \ldots$

18) $\ldots,\ 1,\ \_\_\_,\ -39,\ \ldots$

19) $\ldots,\ -22,\ \_\_\_,\ \_\_\_,\ -622,\ \ldots$

20) $\ldots,\ -31,\ \_\_\_,\ \_\_\_,\ -91,\ \ldots$

21) $\ldots,\ -10,\ \_\_\_,\ \_\_\_,\ 80,\ \ldots$

22) $\ldots,\ -31,\ \_\_\_,\ \_\_\_,\ \_\_\_,\ 769,\ \ldots$

23) The number of toy rockets made each hour by an assembly line for 8 hours forms an arithmetic sequence. If the line produced 40 rockets in hour one and 43 rockets in hour two, how man rockets will be produced in hour seven?

24) The arithmetic mean of two numbers is $\frac{x+y}{2}$. In an arithmetic sequence, is the middle term of any three consecutive terms the arithmetic mean of the other two terms? Justify.

25) The arithmetic mean of the monthly salaries of two employees is \$3210. One employee earns \$3470 per month. What is the monthly salary of the other employee?

26) The number of seats in the first 16 rows in a curved section of an arena form an arithmetic sequence. If there are 20 seats in Row 1 and 23 in Row 2, how many seats are in Row 16?