Name: _____ Date: _____

UNIT 5 **LESSON 2**

AIM: **How can create and use the explicit formula to find the "nth" term of an Arithmetic Sequence?**

Explicit Formula

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

Vocabulary of Sequences

$a_1 \rightarrow$ First term

$a_n \rightarrow$ nth term

$n \rightarrow$ number of terms

$d \rightarrow$ common difference

An _____ is used to define the pattern of sequences. Using the explicit formula you can calculate the value of the _____ term.

1. Given the sequence 8, 14, 20, 26, 32 …

a_1=

d =

Sequence term	a_n
$\mathbf{a_1}$	
$\mathbf{a_2}$	
$\mathbf{a_3}$	
$\mathbf{a_4}$	
$\mathbf{a_5}$	

a) Write the explicit formula.

b) Use the explicit formula to find the 20^{th} term (a_{20}) .

2. Given the arithmetic sequence 18, 23, 28, 33, 48 …

a) Write the explicit formula

a_1=

d =

Sequence term	a_n
$\mathbf{a_1}$	
$\mathbf{a_2}$	
$\mathbf{a_3}$	
$\mathbf{a_4}$	
$\mathbf{a_5}$	

b) Use the explicit formula to find the 16^{th} term (a_{16}) .

3. Given the arithmetic sequence 5, 1, -3, -7 ...

a) Write the explicit formula

a_1=

d =

Sequence term	a_n
$\mathbf{a_1}$	
$\mathbf{a_2}$	
$\mathbf{a_3}$	
$\mathbf{a_4}$	
$\mathbf{a_5}$	

b) Use the explicit formula to find the 30^{th} term (a_{30}) .

4. Given the arithmetic sequence 15, 13, 11 , 9, 7……

a) Write the explicit formula

a_1=

d =

Sequence term	a_n
$\mathbf{a_1}$	
$\mathbf{a_2}$	
$\mathbf{a_3}$	
$\mathbf{a_4}$	
$\mathbf{a_5}$	

b) Use the explicit formula to find the 34^{th} term (a_{34}) .

5. Use an explicit formula to find out what the 50^{th} term in this sequence would be?

a_1=

d =

Sequence term	a_n
$\mathbf{a_1}$	
$\mathbf{a_2}$	
$\mathbf{a_3}$	
$\mathbf{a_4}$	
$\mathbf{a_5}$	

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6. Find the 25^{th} term of the arithmetic sequence in which $a_1=5$ and $d=4$

   a. 100

   b. 124

   c. 101

   d. 125

7. Write an equation for the nth term of the arithmetic sequence –7, –2, 3, 8, …

   a. $a_n = n + 5$

   b. $a_n = 5n - 12$

   c. $a_n = -7n + 12$

   d. $a_n = -7(n + 5)$

8. A theater has 60 seats in the first row, 68 seats in the second row, 76 seats in the third row, and so on in the same increasing pattern. If the theater has 10 rows, how many seats are in the 10th row?