

**Algebra 1**  
**3-4 Arithmetic Sequence**

Name \_\_\_\_\_

Date \_\_\_\_\_ **A#5**

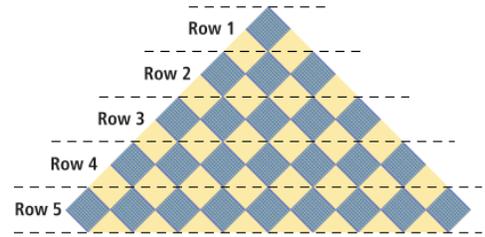


**Goal:** Identify and describe arithmetic sequences

**I. Warm Up:** A fashion designer is designing a patterned fabric.

a. Complete the table.

Row Number	1	2	3	4	5
Number of Shaded Squares in the Row	1		5		
Total Number of Shaded Squares	1		9		



b. What number patterns do you see in the rows of the table?

**II. Vocabulary**

a. Is the ordered list 26, 39, 52, 65, 78 an arithmetic sequence?

**Sequence:** an ordered list of numbers that form a \_\_\_\_\_  
 Each number in is called a **term in the sequence**. An **arithmetic sequence** has a pattern between consecutive (one after \_\_\_\_\_) terms that is a \_\_\_\_\_ (or s \_\_\_\_\_)

26, 39, 52, 65, 78

The **common difference** is \_\_\_\_\_, because that is number one adds to get to the next number in the sequence.

b. We can also think of the sequence as a function based on the number of terms. The domain is restricted to the \_\_\_\_\_ and the range is the \_\_\_\_\_.

Term number	$n$	1	2	3	4	5
Term	$A(n)$	26	39	52	65	78

In function notation, we can write  $A(1) = \underline{\hspace{2cm}}$ ,  $A(2) = \underline{\hspace{2cm}}$ , etc. Another form of notation is call **subscript notation**: \_\_\_\_\_.

**Try It!** Given 4, 8, 12, 16, ..., what is the common difference? What is the fifth term in subscript and function notation?

**III. Recursive vs Explicit Formulas**

	Recursive Formula	Explicit Formula
Description	<i>Recursive</i> means to repeat over and over. This formula relates each new term to the _____.	This formula helps one to find the $n$ th term using the _____ term. Corresponds to _____ form.
Formula	$a_n = a_{n-1} + d$	$a_n = a_1 + (n-1)d$
Example using 26, 39, 52, 65, 78. Find the 15 <sup>th</sup> term.		

**Try It!** Write the recursive formula and explicit formula for 4, 8, 12, 16, ... What is the 10<sup>th</sup> term?

**IV. Application** You open a savings account with a \$400 deposit. Each month after that, you deposit \$25. Write a recursive rule and an explicit rule to represent the amount of money you deposit into your savings account. How much money will you have in the account on month 12?

**Try It!** Given the steps on the right, write a recursive rule for the situation. Then write an explicit rule. How far off the ground is the 14<sup>th</sup> step?

