

# Math 11 Pre-Calculus LG 1

## ARITHMETIC SEQUENCES AND SERIES

### INTRODUCTION:

There are many different kinds of patterns of numbers. Check out pages 4-5.

### LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

- 1) identify and build an arithmetic sequence.
- 2) find unknown quantities using the arithmetic sequence formula.
- 3) find the sum of an arithmetic series.
- 4) manipulate the arithmetic series formula in order to find an unknown quantity.

### EVALUATION:

You are ready to progress to the next learning guide when you can demonstrate your understanding of the above expectations. Please refer to your Mathematics 11 Pre-Calc Marks Record Sheet to determine the assessment.

### RESOURCES NEEDED:

 Math 11 Pre-Calc Text

 THSS Math 11 Pre-Calc Learning Guides.

### LEARNING ACTIVITIES:

-  **Expectation #1: Identify and build an arithmetic sequence.**  
**Expectation #2: Find unknown quantities using the arithmetic sequence formula.**

1.  [Watch and take notes on instructional video on Arithmetic Sequences.](#)
2.  In the textbook, complete the Investigate Arithmetic Sequences activity PART-A ONLY on pages 6 and 7. Then complete #4 and 5 on page 8.
3. In the textbook, read pages 8 and 9. Now work through examples 1-4 on pages 10-15.
4.  Read Key Ideas on page 16. In your math journal, give an example of an arithmetic sequence. With your arithmetic sequence identify how you determined the difference. Write the formula for the general term of an arithmetic sequence and identify the parts of the formula (ie.  $t_1$ ,  $n$ ,  $d$ , and  $t_n$ ).



5. In the textbook, complete pages 16-20 #1-7, 9-11, 16, 17, 19, 24.



**Expectation #3: Find the sum of an arithmetic series.**

**Expectation #4: Manipulate the arithmetic series formula in order to find an unknown quantity.**



1. [Watch and take notes on instructional video on Arithmetic Series.](#)



2. In the textbook, read about the Mathematician Gauss at the top of page 22. Then read *Link the Ideas* on page 24.

3. Work through Example #1 on page 25 and then complete Your Turn on page 25.

4. Work through Example #2 on page 26 and then complete Your Turn on page 26.



5. Read Key Ideas on page 27. In your math journal, write the formula for finding the sum of an arithmetic sequence. Define the following variables:  $t_1$ ,  $n$ ,  $d$ ,  $t_n$ ,  $S_n$ .



6. In the textbook, complete pages 27-31 #1-8, 10, 11, 13, 15, 17, 18, 20, 23.

## REVIEW AND CHALLENGE



1. In the textbook, complete Chapter 1 Review pages 66-67 #1-11.

**Key Terms:** sequence, arithmetic sequence, common difference ( $d$ ), general term ( $t_n$ ),  $t_1$ ,  $n$ , arithmetic series,  $S_n$ .

## PRACTICE QUIZZES

[Practice quiz #1](#)

[Practice quiz #2](#)

[Practice quiz #3](#)

[Practice quiz #4](#)