Section 9.2 Arithmetic Sequences and Partial Sums

Objective: In this lesson you learned how to recognize, write, and manipulate arithmetic sequences.

Important Vocabulary

Define each term or concept.

Arithmetic sequence

Common difference

I. Arithmetic Sequences (Pages 616–618)

The *n*th term of an arithmetic sequence has the form

_____, where *d* is the common difference

between consecutive terms of the sequence, and $c = a_1 \Box d$.

Therefore, an arithmetic sequence may be thought of as a(n)

_____ function whose domain is the set of natural

numbers.

- **Example :** Determine whether or not the following sequence is arithmetic. If it is, find the common difference. 7, 3, \Box 1, \Box 5, \Box 9, . . .
- **Example :** Find a formula for the *n*th term of the arithmetic sequence whose common difference is 2 and whose first term is 7.

The nth term of an arithmetic sequence has the alternative

recursion formula______.

Example : Find the sixth term of the arithmetic sequence that begins with 15 and 12.

What you should learn How to recognize and write arithmetic sequences

Course Number

Instructor

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II. The Sum of a Finite Arithmetic Sequence (Pages 619\[]620)

The sum of a finite arithmetic sequence with n terms is

The sum of the first n terms of an infinite sequence is the

Example : Find the sum of the first 20 terms of the sequence with *n*th term $a_n = 28 \Box 5n$.

III. Application (Page 621)

Describe a real-life problem that could be solved by finding the sum of a finite arithmetic sequence.

Additional notes

What you should learn How to find an *n*th partial sum of an arithmetic sequence

What you should learn How to use arithmetic sequences to model and solve real-life problems

Homework Assignment

Page(s)

Exercises