Section 9.4 Mathematical Induction

Objective: In this lesson you learned how to use mathematical induction to prove a statement involving a positive integer n.

Define each term or concept.

Mathematical induction

Important Vocabulary

I. Introduction (Pages 854–858)

To apply the Principle of Mathematical Induction, you need to be able to determine the statement ______ for a given statement P_k .

When using mathematical induction to prove a summation

formula, it is helpful to think of S_{k+1} as . . .

Describe the process needed to prove a formula using mathematical induction.

The extended principle of mathematical induction is . . .

What you should learn How to use mathematical induction to prove a statement

Course Number

Instructor

Date

II. Pattern Recognition (Page 859)

To find a formula for the *n*th term of a sequence...

What you should learn How to recognize patterns and write the *n*th term of a sequence

What you should learn How to find the sums

and powers of integers

III. Sums of Powers of Integers (Page 860)

List the formulas for the following sums of powers of integers.



IV. Finite Differences (Page 861)

First differences of a sequence are found by ...

Second differences of a sequence are found by . . .

When the first differences of a sequence are all the same, the

sequence has a _____model.

When the second differences of a sequence are all the same, the sequence has a model.

Homework Assignment

Page(s)

Exercises

What you should learn How to find finite differences of a sequence