PRINCIPLE OF MATHEMATICAL INDUCTION

INTRODUCTION

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Mathematical induction is a specialized form of deductive reasoning used to prove a fact about all the elements in an infinite set by performing a finite number of steps. The process of drawing a valid general result from particular results is called the process of induction.

The principle of mathematical induction is a mathematical process which is used to establish the validity of a general result involving natural numbers.

STATEMENT

A sentence is called a statement if it is either true or false but not both.

For example, the sentence "Two plus five equals seven" is a statement because this sentence is true.

A statement concerning the natural number 'n' is generally denoted by P(n).

For example, if P(n) denotes the statement : "n(n + 1) is an even number," then

P(3) is the statement : "3(3 + 1) is an even number"

and P (7) is the statement : "7(7 + 1) is an even number" etc.

Here P (3) and P (7) are both true.