

# Generalization of Mathematical induction

Jaejin Lim

**Abstract** : This paper is written to prove that although  
supposes are many, it can be proven in mathematical  
induction.

There are nature number, 'a', 'k', 'B' and 'C'.  
P(x) is a proposition.

[ About P(x)

When n is a  
P(a) is true.

When n is k  
suppose P(k) is true.

When n is k + 1  
suppose P(k + 1) is true.

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When n is k + B - 1  
suppose P(k + B - 1) is true.  
(totally supposed as B times)

When n is k + B  
prove P(k + B) is true. ]

This [] is  $M(B)$ .

And I'll prove  $P(x)$  ( $x \geq a$ ) is true in  $M(B)$  ( $B \geq 1$ ).

About  $M(B)$

When  $B$  is 1

$M(1)$  is mathematical induction.

When  $B$  is  $C$

(1) suppose  $M(C)$  is true.

That is if  $P(k + C)$  is true,

$P(x)$  is true. ( $x \geq a$ )

When  $B$  is  $C + 1$

$P(n)$  is true ever since  $n$  is  $k + C$ .

As  $P(k + C)$  is true, by (1) suppose,

$P(x)$  is true. ( $x \geq a$ )

So,  $M(B)$  ( $B \geq 1$ ) is true.