

Communications in Economics and Mathematical Sciences

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1 Introduction

We start with stating fundamental cocepts of set theory.

Definition 1. The *power set* of a set X is the collection of all subsets of X .

Axiom 1 (Axiom of Choice). The Cartesian product of a nonempty set of nonempty sets is nonempty.

Lemma 1 (Zorn's Lemma). *If every chain in a partially ordered set X has an upper bound, then X has a maximal element.*

2 Prerequisite

The Proposition below is new.

Proposition 1. *The following equation holds.*

$$a = b \times c \tag{1}$$

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3 Main Results

Fortunately we can prove the following theorem with the aid of Proposition 1.

Theorem 1. *For any positive integer n , the assertion $A(n)$ is true.*

Corollary 1. *For any positive even integer n , the assertion $A(n)$ is true.*

Theorem 2 (Pythagoras).

$$a^2 + b^2 = c^2. \quad (2)$$

Example 1.

$$3^2 + 4^2 = 5^2$$

Remark 1.

$$2^2 + 4^2 \neq 5^2$$

4 Concluding Remarks

We hope people can understand the value of the theorem above.

5 Proofs

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Proof of Theorem 2. Here is the defered proof. Here is the defered proof. Here is the defered proof.
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