

The "Letter Game"

Undefined terms: Letters M, I, and U

Definition: x means any string of I's and U's.

Postulates: 1. If a string of letters ends in I, you may add a U at the end.

Doubling Rule → 2. If you have Mx, then you may add x to get Mxx.

3. If 3 I's occur, that is, III, then you may substitute U in their place.

4. If UU occurs, you drop it.

Objective: Given one string, you are to derive or prove some other string.

Example: Given: MI
Prove: MIIU

Statement	Reason
MI	Given
MII	Rule 2
MIIU	Rule 1

Prove the following theorems:

1. Given: MIII
Prove: M

Statement	Reason

2. Given: MIIUUIIIII
Prove: MIIU

Statement	Reason

3. Given: MI
Prove: MUI

Statement	Reason

4. Given: MI
Prove: MIUIU

Statement	Reason

5. Given: MI
Prove: MIIUIU

Statement	Reason

6. Given: MIIUII
Prove: MIIUIU

Statement	Reason