

# The M - I - U System

Undefined Terms - M, I, U

Definitions - x means any set of I's and U's

Postulate - 1. If a string of letters ends in "I" you can add a "U" at the end.  
If MIUII, then MIUIIU

Postulate - 2. If you have Mx, then you can add x to get Mxx.  
If MUIU, then MUIU UIU

Postulate - 3. If three (3) I's occur(III), then you may substitute U in their place.  
If MUIII, then MUU

Postulate - 4. If UU occurs, then you can drop them.  
If MIUU, then MI

**Ex. 1: Given: MI  
Prove: MIIU**

Statement	Reasons
1. MI	1. Given
2. MII	2. Post. 2
3. MIIU	3. Post. 1

**Ex. 2: Given: MU  
Prove: M**

Statement	Reasons
1. MU	1. Given
2. MUU	2. Post. 2
3. M	3. Post. 4

Postulates - 1. If a string of letters ends in "I" you can add a "U" at the end.  
If MIUII, then MIUIIU

Postulate - 2. If you have Mx, then you can add x to get Mxx.  
If MUIU, then MUIU UIU

Postulate - 3. If three (3) I's occur(III), then you may substitute U in their place.  
If MUIII, then MUU

Postulate - 4. If UU occurs, then you can drop them.  
If MIUU, then MI

**Ex. 3 Given: MIIIIU  
Prove: MIU**

Statements	Reasons
1. MIIIIU	1. Given
2. MIUU	2. Post. 3
3. MI	3. Post. 4
4. MIU	4. Post. 1

**Ex. 4 Given: MUIIU  
Prove: MIU**

Statements	Reasons
1. MUIIU	1. Given
2. MUIIUUIIU	2. Post. 2
3. MUIIIU	3. Post. 4
4. MUUIU	4. Post. 3
5. MIU	5. Post. 4

Postulates - 1. If a string of letters ends in "I" you can add a "U" at the end.  
If  $MIUII$ , then  $MIUIIU$

Postulate - 2. If you have  $Mx$ , then you can add  $x$  to get  $Mxx$ .  
If  $MUIU$ , then  $MUIU UIU$

Postulate - 3. If three (3) I's occur(III), then you may substitute U in their place.  
If  $MUIII$ , then  $MUU$

Postulate - 4. If  $UU$  occurs, then you can drop them.  
If  $MIUU$ , then  $MI$

**Ex. 5 Given: MI**  
**Prove: MUIUI**

Statements	Reasons
1. MI	1. Given
2. MII	2. Post. 2
3. MIIII	3. Post. 2
4. MUI	4. Post. 3
5. MUIUI	5. Post. 2

Postulates - 1. If a string of letters ends in "I" you can add a "U" at the end.  
If  $MIUII$ , then  $MIUIIU$

Postulate - 2. If you have  $Mx$ , then you can add  $x$  to get  $Mxx$ .  
If  $MUIU$ , then  $MUIU UIU$

Postulate - 3. If three (3) I's occur(III), then you may substitute U in their place.  
If  $MUIII$ , then  $MUU$

Postulate - 4. If  $UU$  occurs, then you can drop them.  
If  $MIUU$ , then  $MI$

**Ex. 6 Given: MUUI**  
**Prove: MUI**

Statements	Reasons
1. MUUI	1. Given
2. MI	2. Post. 4
3. MII	3. Post. 2
4. MIIII	4. Post. 2
5. MUI	5. Post. 3

Postulates - 1. If a string of letters ends in "I" you can add a "U" at the end.  
If  $MIUII$ , then  $MIUIIU$

Postulate - 2. If you have  $Mx$ , then you can add  $x$  to get  $Mxx$ .  
If  $MUIU$ , then  $MUIUUIU$

Postulate - 3. If three (3) I's occur(III), then you may substitute U in their place.  
If  $MUIII$ , then  $MUU$

Postulate - 4. If  $UU$  occurs, then you can drop them.  
If  $MIUU$ , then  $MI$

**Ex. 7 Given:  $MUII$   
Prove:  $MUIU$**

Statements	Reasons
1. $MUII$	1. Given
2. $MI$	2. Post. 4
3. $MII$	3. Post. 2
4. $MIII$	4. Post. 2
5. $MUI$	5. Post. 3
6. $MUIU$	6. Post. 1