ALGEBRAIC PROPERTIES OF EQUALITY

Let a, b, and c be real numbers.

Addition Property If $a = b$, then $a + c = b + c$.

Subtraction Property If $a = b$, then $a - c = b - c$.

Multiplication Property If $a = b$, then $ac = bc$.

Division Property If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

Substitution Property If $a = b$, then a can be substituted for b.

DISTRIBUTIVE PROPERTY

$a(b + c) = ab + ac$, where a, b, and c are real numbers.

Oct 25-8:00 AM

REFLEXIVE PROPERTY OF EQUALITY

Real Numbers For any real number a, $a = a$.

Segment Length For any segment AB, $AB = AB$.

Angle Measure For any angle A, $m\angle A = m\angle A$.

SYMMETRIC PROPERTY OF EQUALITY

Real Numbers For any real numbers a and b, if $a = b$, then $b = a$.

Segment Length For any segments AB and CD, if $AB = CD$, then $CD = AB$.

Angle Measure For any angles A and B, if $m\angle A = m\angle B$, then $m\angle B = m\angle A$.

TRANSITIVE PROPERTY OF EQUALITY

Real Numbers For any real numbers a, b, and c, if $a = b$ and $b = c$, then $a = c$.

Segment Length For any segments AB, CD, and EF, if $AB = CD$ and $CD = EF$, then $AB = EF$.

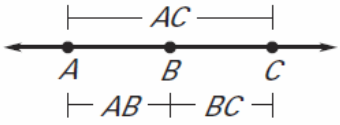
Angle Measure For any angles A, B, and C, if $m\angle A = m\angle B$ and $m\angle B = m\angle C$, then $m\angle A = m\angle C$.

Oct 25-8:02 AM

SEGMENT ADDITION POSTULATE

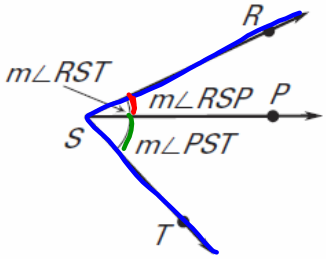
If *B* is between *A* and *C*, then *AB* + *BC* = *AC*.

If *AB* + *BC* = *AC*, then *B* is between *A* and *C*.



ANGLE ADDITION POSTULATE

Words If *P* is in the interior of ∠*RST*, then the measure of ∠*RST* is equal to the sum of the measures of ∠_____ and ∠_____.



Symbols If *P* is in the interior of ∠*RST*, then $m\angle RST = m\angle$ RSP $+ m\angle$ PST .

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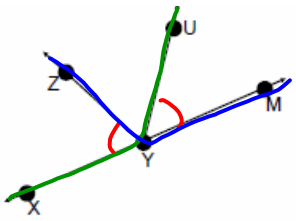
YOU TRY NOW!

Given: ∠*XYZ* ≅ ∠*MYU*
Prove: ∠*XYU* ≅ ∠*MYZ*



Statements	Reason
1. ∠XYZ ≅ ∠MYU	1. Given
2. ∠ZYU ≅ ∠ZYU	2. Reflexive Property
3. ∠XYZ+∠ZYU = ∠MYU+∠ZYU	3. Addition Property
4. ∠XYZ+∠ZYU = ∠XYU	4. Angle Addition Postulate
5. ∠MYU+∠ZYU = ∠MYZ	5. Angle Addition Postulate
6. ∠XYU ≅ ∠MYZ	6. Substitution

Oct 25-8:15 AM