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TOC pg 54 U2- Geometric Proof

PROPERTIES OF CONGRUENCE	
REFLEXIVE PROPERTY OF CONGRUENCE	For any geometric figure A , $A \cong A$.
SYMMETRIC PROPERTY OF CONGRUENCE	If $A \cong B$, then $B \cong A$.
TRANSITIVE PROPERTY OF CONGRUENCE	If $A \cong B$ and $B \cong C$, then $A \cong C$
Additional Reasons for Proofs	
DEFINITIONS	
POSTULATES	
PREVIOUSLY PROVED THEOREMS	
ALGEBRAIC PROPERTIES	

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Given: $m\angle A = 90^\circ$; $\angle A \cong \angle Z$

Prove: $\angle Z$ is a right angle

Statements	Reasons
1. $m\angle A = 90^\circ$; $\angle A \cong \angle Z$	1. Given
2. $\angle Z = 90^\circ$	2. Transitive POC
3. $\angle Z$ is a right \angle .	3. Def. of a rt. \angle .

Given: $m\angle 1 = 90^\circ$; $\angle 1 \cong \angle 2$; $\angle 2 \cong \angle 3$

Prove: $\angle 3$ is a right angle

Statements	Reasons
1. $m\angle 1 = 90^\circ$; $\angle 1 \cong \angle 2$; $\angle 2 \cong \angle 3$	1. Given
2. $\angle 1 \cong \angle 3$	2. Transitive POC
3. $\angle 3 = 90^\circ$	3. Transitive POC
4. $\angle 3$ is a right \angle	4. Def. of rt \angle

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Given: $m\angle O = 180^\circ$; $m\angle P = m\angle S$; $\angle O \cong \angle P$

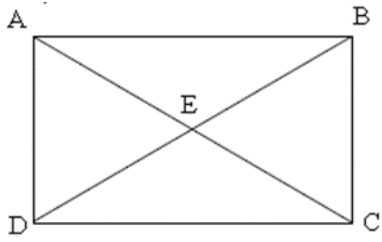
Prove: $\angle S$ is a straight angle

Statements	Reasons
1. $m\angle O = 180^\circ$; $m\angle P = m\angle S$; $\angle O \cong \angle P$	1. Given
2. $\angle O \cong \angle S$	2. Transitive POC
3. $m\angle S \cong 180^\circ$	3. Transitive POC
4. $\angle S$ is a straight angle	4. Def. of a straight angle

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DEFINITIONS AND POSTULATES REGARDING SEGMENTS	
SEGMENT ADDITION POSTULATE	If C is between A and B , then $AC + CB = AB$
DEFINITION OF SEGMENT CONGRUENCE	If $\overline{AB} \cong \overline{CD}$, then $AB = CD$
DEFINITION OF A SEGMENT BISECTOR	A geometric figure that divides a segment in to two congruent halves
DEFINITION OF A MIDPOINT	A point that bisects a segment
DEFINITIONS AND POSTULATES REGARDING ANGLES	
ANGLE ADDITION POSTULATE	If C is on the interior of $\angle ABD$, then $m\angle ABC + m\angle CBD = m\angle ABD$
DEFINITION OF ANGLE CONGRUENCE	If $\angle A \cong \angle B$, then $m\angle A = m\angle B$
DEFINITION OF AN ANGLE BISECTOR	A geometric figure that divides a angle in to two congruent halves

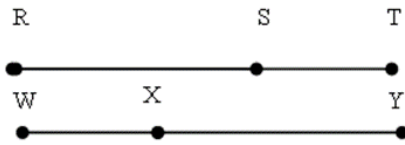
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<p>Given: E is the midpoint of \overline{AC} and \overline{BD} ; $\overline{ED} \cong \overline{EC}$</p> <p>Prove: $\overline{AE} \cong \overline{BE}$</p>	
Statements	Reasons
1. E is the midpoint of \overline{AC} & \overline{BD} ; $\overline{ED} \cong \overline{EC}$	1. Given
2. $\overline{AE} \cong \overline{EC}$; $\overline{EC} \cong \overline{BE}$	2. Def. of midpoint
3. $\overline{AE} \cong \overline{ED}$; $\overline{ED} \cong \overline{BE}$	3. Transitive POC
4. $\overline{AE} \cong \overline{BE}$	4. Transitive POC

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Given: $\overline{RT} \cong \overline{WY}$; $\overline{ST} \cong \overline{WX}$

Prove: $\overline{RS} \cong \overline{XY}$

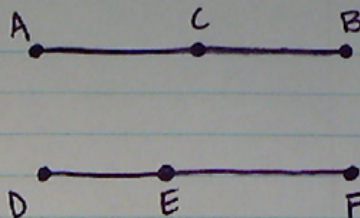


Statements	Reasons
1. $\overline{RT} \cong \overline{WY}$; $\overline{ST} \cong \overline{WX}$	1. Given
2. $\overline{RS} + \overline{ST} = \overline{RT}$; $\overline{WX} + \overline{XY} = \overline{WY}$	2. Segment Add.
3. $\overline{RS} + \overline{ST} = \overline{WX} + \overline{XY}$	3. Transitive POC
4. $\overline{RS} + \overline{WX} = \overline{WX} + \overline{XY}$ $-\overline{WX}$ $-\overline{WX}$	4. Substitution
5. $\overline{RS} \cong \overline{XY}$	5. Subtraction POE

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Homework

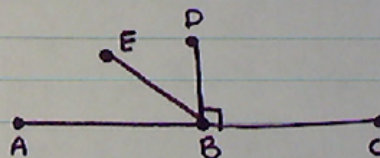
① Given: C is the midpoint of \overline{AB} .
 $\overline{AC} \cong \overline{DE}$
 $\overline{AB} \cong \overline{DF}$
Prove: $\overline{CB} \cong \overline{EF}$



STATEMENTS

REASONS

② Given: $\angle DBC$ is a right angle
 $\angle ABE = 37^\circ$
Prove: $\angle EBD = 53^\circ$



STATEMENTS

REASONS

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