Name Answers Date ____________ Per ______

Geometry - Chapter 4 Review (Part 2)

Match the following statements with the name of the definition, postulate, or theorem.

1) H An equilateral triangle is equiangular, and conversely, and equiangular triangle is equilateral.

2) I If two angles and the included side in one triangle are congruent to two angles and the included side in another triangle, then the two triangles are congruent.

3) D The measure of an exterior angle of a triangle is equal to the sum of the measures of the remote interior angles.

4) G If a triangle has two congruent angles, then it is an isosceles triangle.

5) F The two angles in a triangle that are not adjacent to the indicated exterior angle.

6) J In an isosceles triangle, the bisector of the vertex angle is also the altitude and median to the base.

7) A The sum of the measures of the angles in a triangle are 180 degrees.

8) E If a triangle is isosceles, then its base angles are congruent.

9) B If two angles of one triangle are equal in measure to two angles of another triangle, then the third angle in each triangle is equal in measure to the third angle in the other triangle.

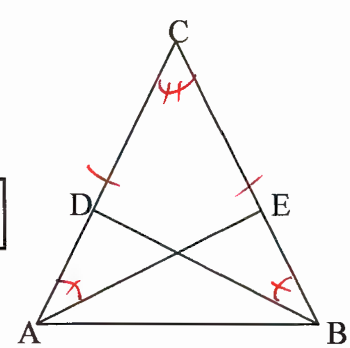
10) C If two angles and a non-included side in one triangle are congruent to two corresponding angles and a non-included side in another triangle, then the triangles are congruent.

A) Triangle Sum Postulate
B) Third Angle Theorem
C) Angle-Angle-Side (AAS or SAA) Congruence Theorem
D) Triangle Exterior Angle Theorem
E) Base Angles Theorem
F) Remote Interior Angles
G) Converse of the Base Angles Theorem
H) Equilateral Triangle Theorem
I) Angle-Side-Angle (ASA) Congruence Postulate
J) Vertex Angle Bisector Theorem

11) Use the information to complete the following flow chart proof.

1. $\overline{AC} \cong \overline{BC}$
2. Given
3. $\angle CAE \cong \angle CBD$
4. Given
5. $\angle C \cong \angle C$
6. Ref. Prop.

7. $\triangle CAE \cong \triangle CBD$
8. ASA



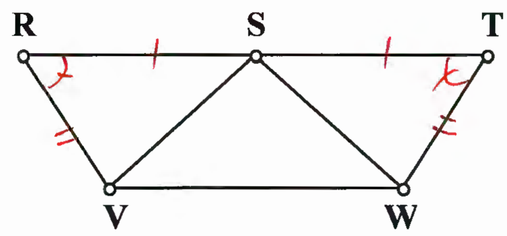
Given: $\overline{AC} \cong \overline{BC}$, $\angle CAE \cong \angle CBD$
Prove: $\triangle CAE \cong \triangle CBD$

12) Given: $\angle R \cong \angle T$

$\overline{RV} \cong \overline{TW}$

S is the midpoint of $\overline{RT}$

Prove: ΔSVW is isosceles

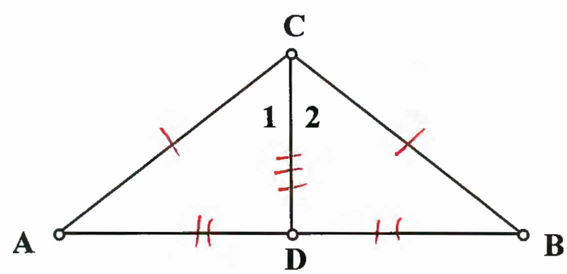


Statement	Reasons
S is the midpoint of $\overline{RT}$	Given
$\overline{RS} \cong \overline{TS}$	Def. of a midpoint
$\angle R \cong \angle T$	Given
$\overline{RV} \cong \overline{TW}$	Given
$\Delta VRS \cong \Delta WTS$	SAS
$\overline{VS} \cong \overline{WS}$	CPCTC
ΔSVW is an isosceles Δ	Def. of an isosceles triangle

13) Given: Isosceles ΔABC with $\overline{AC} \cong \overline{BC}$

$\overline{CD}$ a median to the base

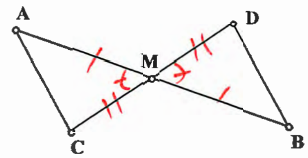
Prove: $\overline{CD}$ is the angle bis. of $\angle ACB$



Statement	Reasons
$\overline{AC} \cong \overline{BC}$	Given
$\overline{CD}$ a median to the base	Given
D is the midpoint of $\overline{AB}$	Def. of a median
$\overline{AD} \cong \overline{BD}$	Def of a midpoint
$\overline{CD} \cong \overline{CD}$	Ref. Property
$\Delta ADC \cong \Delta BDC$	SSS
$\angle 1 \cong \angle 2$	CPCTC
$\overline{CD}$ is the angle bisector of $\angle ACB$	Def. of an angle bisector

14) Given: M is the midpoint of both $\overline{AB}$ and $\overline{CD}$

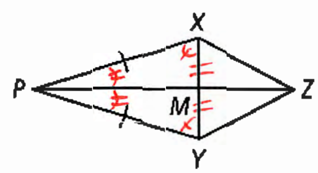
Prove: $\overline{AC} \cong \overline{BD}$



Statement	Reasons
M is the midpoint of both $\overline{AB}$ and $\overline{CD}$	Given
$\overline{AM} \cong \overline{BM}$	Def. of midpoint
$\overline{CM} \cong \overline{DM}$	Def. of midpoint
$\angle AMC \cong \angle BMD$	VA
$\triangle AMC \cong \triangle BMD$	SAS
$\overline{AC} \cong \overline{BD}$	CPCTC

15) Given: $\overline{PX} \cong \overline{PY}$, $\overline{ZP}$ bisects $\overline{XY}$

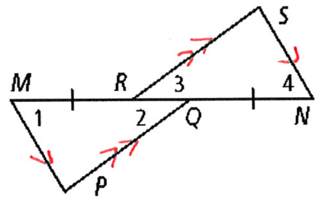
Prove: $\Delta PXZ \cong \Delta PYZ$



Statement	Reasons
$\overline{PX} \cong \overline{PY}$	Given
$\angle PXY \cong \angle PYX$	Base Angles Theorem
$\overline{ZP}$ bisects $\overline{XY}$	Given
$\overline{XM} \cong \overline{YM}$	Def. of a bisector
$\triangle PXM \cong \triangle PYM$	SAS
$\angle XPM \cong \angle YPM$	CPCTC
$\overline{PZ} \cong \overline{PZ}$	Ref. Property
$\triangle PXZ \cong \triangle PYZ$	SAS

16) Given: $\overline{MP} \parallel \overline{NS}$, $\overline{RS} \parallel \overline{PQ}$, $\overline{MR} \cong \overline{NQ}$

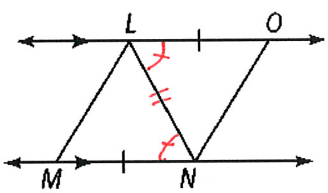
Prove: $\Delta MQP \cong \Delta NRS$



Statement	Reasons
$\overline{MP} \parallel \overline{NS}$, $\overline{RS} \parallel \overline{PQ}$, $\overline{MR} \cong \overline{NQ}$	Given
☆ $\angle 1 \cong \angle 4$	AIA
☆ $\angle 2 \cong \angle 3$	AIA
$MR = NQ$	Def. of congruency
$RQ = RQ$	Reflexive Prop. of =
$MR + RQ = NQ + RQ$	Add. Prop. of =
$MR + RQ = MQ$, $NQ + QR = NR$	Segment Addition Postulate
$MQ = NR$	Substitution
☆ $\overline{MQ} \cong \overline{NR}$	Def. of congruency
$\Delta MQP \cong \Delta NRS$	ASA

17) Given: $\overline{LO} \cong \overline{MN}$, $\overleftrightarrow{LO} \parallel \overleftrightarrow{MN}$

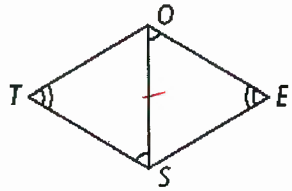
Prove: $\angle MLN \cong \angle ONL$



Statement	Reasons
$\overline{LO} \cong \overline{MN}$	Given
$\overleftrightarrow{LO} \parallel \overleftrightarrow{MN}$	Given
$\angle OLN \cong \angle MNL$	AIA
$\overline{LN} \cong \overline{LN}$	Ref. Property
$\Delta MLN \cong \Delta ONL$	SAS
$\angle MLN \cong \angle ONL$	CPCTC

18) Given: $\angle OTS \cong \angle OES$, $\angle EOS \cong \angle OST$

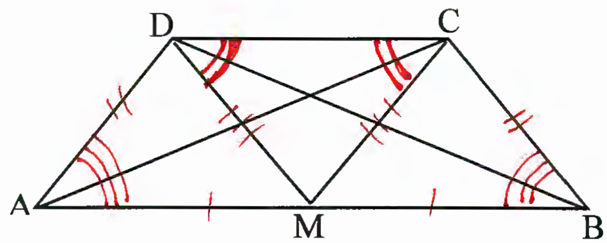
Prove: $\overline{TO} \cong \overline{ES}$



Statement	Reasons
$\angle OTS \cong \angle OES$	Given
$\angle EOS \cong \angle OST$	Given
$\overline{OS} \cong \overline{OS}$	Ref. Property
$\triangle TSO \cong \triangle EOS$	AAS
$\overline{TO} \cong \overline{ES}$	CPCTC

19) Given: $\overline{AM} \cong \overline{MB}$, $\overline{AD} \cong \overline{BC}$
$\angle MDC \cong \angle MCD$

Prove: $\overline{AC} \cong \overline{BD}$



Statement	Reasons
$\overline{AM} \cong \overline{MB}$	Given
$\overline{AD} \cong \overline{BC}$	Given
$\angle MDC \cong \angle MCD$	Given
$\overline{DM} \cong \overline{CM}$	Converse of the Base Angles Theorem
$\triangle ADM \cong \triangle BCM$	SSS
$\angle DAB \cong \angle CBA$	CPCTC
$\overline{AB} \cong \overline{AB}$	Ref. Prop
$\triangle DAB \cong \triangle CBA$	SAS
$\overline{AC} \cong \overline{BD}$	CPCTC