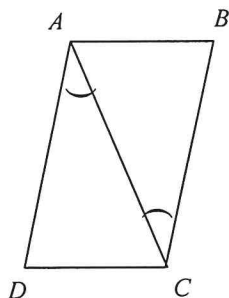**Final Exam Review**
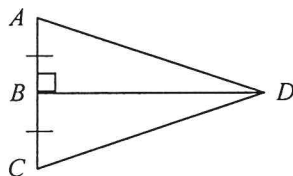**Geometry Semester 1**

Name:_____

Prove and justify- Final Review part 3

1- What else must you know to prove the triangles congruent by ASA? By SAS?

a. $\angle ACD \cong \angle CAB$; $\overline{AB} \cong \overline{CD}$ c. $\angle ADC \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$

b. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{BC}$ d. $\angle ACD \cong \angle CAB$; $\overline{AD} \cong \overline{AC}$

2- Name the theorem or postulate that lets you immediately conclude $\triangle ABD \cong \triangle CBD$.
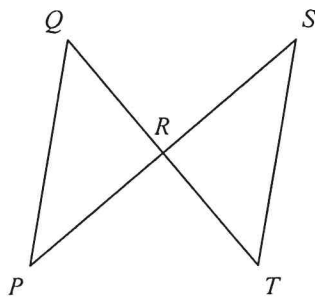

a.   SAS   b.   ASA   c.   AAS   d.   none of these

3- Supply the missing reasons to complete the proof.
Given: $\angle Q \cong \angle T$ and $\overline{QR} \cong \overline{TR}$
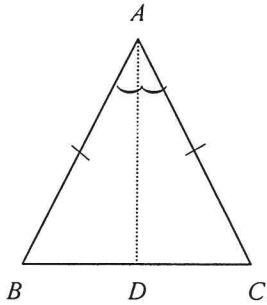
Prove: $\overline{PR} \cong \overline{SR}$

Statement	Reasons
1. $\angle Q \cong \angle T$ and $\overline{QR} \cong \overline{TR}$	1. Given
2. $\angle PRQ \cong \angle SRT$	2. Vertical angles are congruent.
3. $\triangle PRQ \cong \triangle SRT$	3. ___?___
4. $\overline{PR} \cong \overline{SR}$	4. ___?___

a.   ASA; Substitution   c.   AAS; CPCTC

b.   SAS; CPCTC   d.   ASA; CPCTC

4.   Supply the reasons missing from the proof shown below.

Given: $\overline{AB} \cong \overline{AC}, \angle BAD \cong \angle CAD$

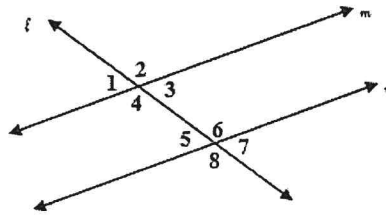**Prove:** $\overline{AD}$ bisects $\overline{BC}$

Statements	Reasons
1. $\overline{AB} \cong \overline{AC}$	1. Given
2. $\angle BAD \cong \angle CAD$	2. Given
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Property
4. $\triangle BAD \cong \triangle CAD$	4. ____?____
5. $\overline{BD} \cong \overline{CD}$	5. ____?____
6. $\overline{AD}$ bisects $\overline{BC}$	6. Def. of segment bisector

a.   ASA; CPCTC   c.   SSS; Reflexive Property
b.   SAS; Reflexive Property   d.   SAS; CPCTC

Use the figure below to answer the next 3 questions.

5. Which statement proves lines m and n are parallel?

   A. $\angle 8$ & $\angle 2$ are alternate exterior angles and supplementary

   B. $\angle 7$ & $\angle 3$ are alternate exterior angles and congruent

   C. $\angle 7$ & $\angle 2$ are same-side exterior angles and supplementary

   D. $\angle 3$ & $\angle 5$ are same-side exterior angles and supplementary

6. Which statement proves lines m and n are parallel?

   A. $\angle 8$ & $\angle 2$ are alternate exterior angles and congruent

   B. $\angle 7$ & $\angle 3$ are alternate exterior angles and supplementary

   C. $\angle 7$ & $\angle 1$ are same-side exterior angles and supplementary

   D. $\angle 3$ & $\angle 5$ are alternate interior angles and supplementary

7. Which statement proves lines m and n are parallel?

A. ∠8 & ∠2 are alternate interior angles and supplementary

B. ∠7 & ∠3 are alternate interior angles and congruent

C. ∠7 & ∠2 are same-side interior angles and supplementary

D. ∠3 & ∠5 are alternate interior angles and congruent

8. Is there enough information to conclude that the two triangles are congruent? If so, what is a correct congruence statement?
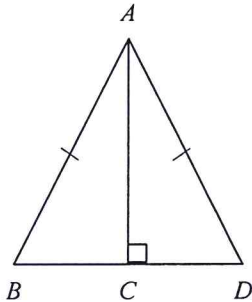
a. Yes; △CAB ≅ △DAC.
b. Yes; △ACB ≅ △ADC.
c. Yes; △ABC ≅ △ACD.
d. No, the triangles cannot be proven congruent.

They are congruent, but none of the given statements are correct

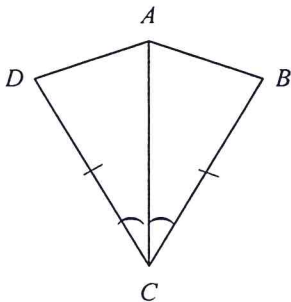9. Based on the given information, can you conclude that △QRS ≅ △TUV? Explain.
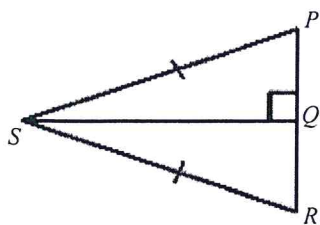**Given:** $\overline{QR} \cong \overline{TU}$, $\overline{QS} \cong \overline{TV}$, and ∠R ≅ ∠U

No

Explanations vary

10. Explain how you can use SSS, SAS, ASA, or AAS with CPCTC to prove that ∠D ≅ ∠B.

Explanations Vary

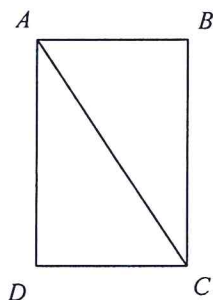*After proving congruence, use CPCTC to prove ∠D ≅ ∠B.*

11. Is $\triangle PQS \cong \triangle RQS$ by HL? If so, name the legs that allow the use of HL.

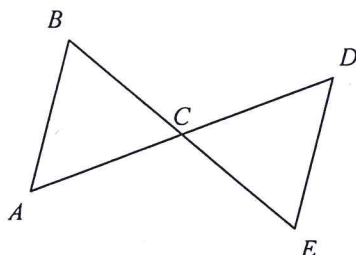Yes, $\overline{SQ} \cong \overline{SQ}$

12. Separate and redraw $\triangle ABC$ and $\triangle CDA$. Mark the corresponding sides and angles.
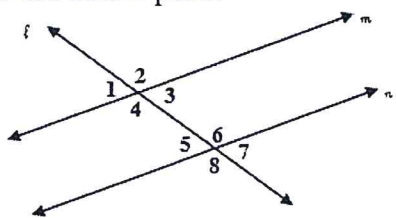
Drawings vary

13. Write a two column proof to show that $\triangle ABC \cong \triangle DEC$.

Given: $\overline{AC} \cong \overline{DC}$ and $\overline{BC} \cong \overline{CE}$

Proofs vary.

14. Complete the below proof

Given m//n
Prove that <3 and <6 are supplementary

Statements	Reasons
1. m//n	1. Given
2. <3 ≅ <5	2. ALT. INT. ∠s
3. ∠5 and ∠6 are supp.	3. Linear Pair Theorem
4. <3 and <6 are supp.	4. Substition Prop.

15.

Addition Property	Substitution Property
If $a = b$, then $a + c = b + c$.	If $a = b$, then b can substitute for a in any equation.
Subtraction Property	Reflexive Property
If $a = b$, then $a - c = b - c$.	$a = a$
Multiplication Property	Symmetric Property
If $a = b$, then $ac = bc$.	If $a = b$, then $b = a$.
Division Property	Transitive Property
If $a = b$, then $\dfrac{a}{c} = \dfrac{b}{c}$; $c \neq 0$.	If $a = b$, and $b = c$, then $a = c$.

Fill in the blank to give a reason for the statement below. You may refer to the Properties of Equality shown.

If $m\angle 1 = m\angle 2$ and $m\angle 2 = m\angle 3$, then $m\angle 1 = m\angle 3$ by the _____ Property of equality.

Transitive

16. Match the correct reasons to the statements of this algebraic proof.

| Reflexive Property of Equality |
| Multiplication Property of Equality |
| Division Property of Equality |
| Substitution |
| Addition Property of Equality |
| Subtraction Property of Equality |

Statement	Reason
1. $\dfrac{3x}{6} = 4$	1. Given equation
2. $3x = 24$	2. [A]
3. $x = 8$	3. [B]

2. Multiplication Property of Equality

3. Division Property of Equality