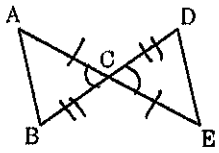
Name: Answer Key Geometry Period: ____

**Station #2 Practice**

1.

In the diagram, $\overline{AE}$ and $\overline{BD}$ bisect each other. Which congruence relationship justifies that $\triangle ABC \cong \triangle ECD$?

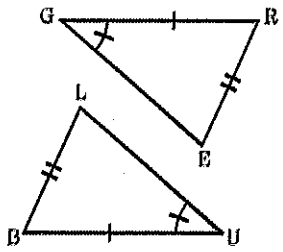



SAS

2.

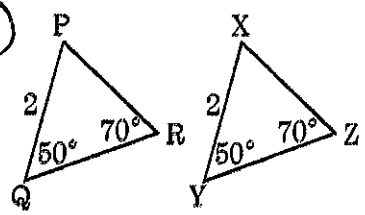
Which diagrams show that the two triangles *must* be congruent?

I.



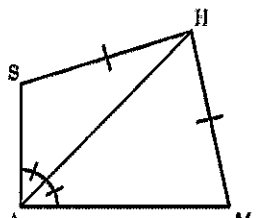

SSA

II.




SAA

III.



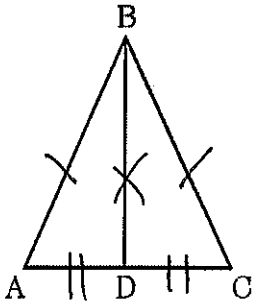

SSA

3.

**In the diagram, $AB = CB$ and $\overline{BD}$ bisects $\overline{AC}$.**

**a) Which congruence relationship justifies that $\triangle ABD \cong \triangle CBD$?**

**b) Why does $m\angle A = m\angle C$?**

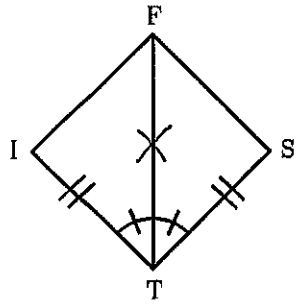



a) SSS

b) because of CPCTC

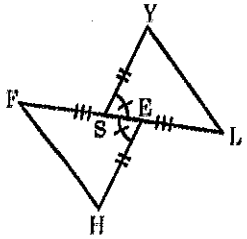
4. In the figure, $IT = ST$ and $m\angle FTI = m\angle FTS$. Complete the statement.

$\triangle FTI \cong \triangle$ FTS

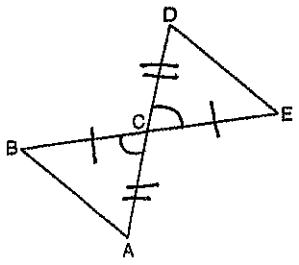



5. **In the figure, $FE = LS$, $m\angle YSL = m\angle HEF$ and $HE = YS$. Complete the statement.**

**$\triangle FEH \cong \triangle$ LSY**



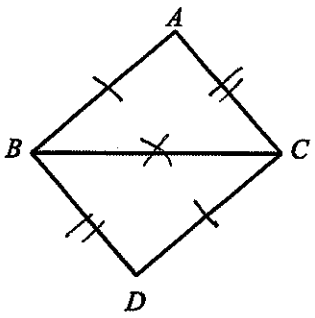

6. Given: $\overline{BE}$ and $\overline{AD}$ intersect at point $C$
$\overline{BC} \cong \overline{EC}$
$\overline{AC} \cong \overline{DC}$
$\overline{AB}$ and $\overline{DE}$ are drawn
Prove: $\triangle ABC \cong \triangle DEC$




| Statement | Reason |
|---|---|
| 1) $\overline{BC} \cong \overline{EC}$ | 1) Given |
| 2) $\overline{AC} \cong \overline{DC}$ | 2) Given |
| 3) $\angle BCA \cong \angle ECD$ | 3) Vertical $\angle$s |
| 4) $\triangle ABC \cong DEC$ | 4) SAS |

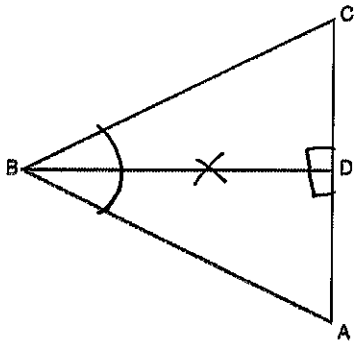
7.

Given: $\overline{AB} \cong \overline{DC}$ and $\overline{AC} \cong \overline{DB}$. Prove: $\Delta ABC \cong \Delta DCB$.



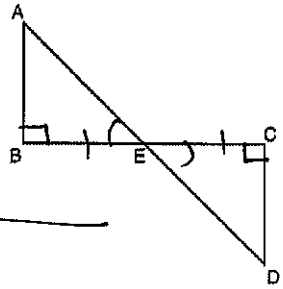

| Statement | Reason |
|---|---|
| 1) $\overline{AB} \cong \overline{DC}$ | 1) Given |
| 2) $\overline{AC} \cong \overline{DB}$ | 2) Given |
| 3) $\overline{BC} \cong \overline{BC}$ | 3) Reflective |
| 4) $\Delta ABC \cong \Delta DCB$ | 4) SSS |

8. Given: $\Delta ABC$, $\overline{BD}$ bisects $\angle ABC$, $\overline{BD} \perp \overline{AC}$
Prove: $\overline{AB} \cong \overline{CB}$




| Statement | Reason |
|---|---|
| 1) $\overline{BD}$ bisects $\angle ABC$ | 1) Given |
| 2) $\overline{BD} \perp \overline{AC}$ | 2) Given |
| 3) $\overline{BD} \cong \overline{BD}$ | 3) Reflexive Property |
| 4) $\angle BDC$ and $\angle BDA$ are right $\angle$s | 4) def. of $\perp$ lines |
| 5) $\angle BDC \cong \angle BDA$ | 5) All right $\angle$s are $\cong$ |
| 6) $\angle CBD \cong \angle ABD$ | 6) Angle bisector |
| 7) $\Delta CBD \cong \Delta ABD$ | 7) ASA |
| 8) $\overline{AB} \cong \overline{CB}$ | 8) CPCTC |

9. Given: $\overline{AD}$ bisects $\overline{BC}$ at $E$.
$\overline{AB} \perp \overline{BC}$
$\overline{DC} \perp \overline{BC}$
Prove: $\overline{AB} \cong \overline{DC}$




| Statement | Reason |
|---|---|
| 1) $\overline{AD}$ bisects $\overline{BC}$ at $E$ | 1) Given |
| 2) $AB \perp BC$ | 2) Given |
| 3) $DC \perp BC$ | 3) Given |
| 4) $\angle AEB \cong \angle DEC$ | 4) Vertical |
| 5) $\angle ABE$ and $\angle DCE$ are right $\angle$s | 5) def. of $\perp$ lines |
| 6) $\angle ABE \cong \angle DCE$ | 6) All right $\angle$s are $\cong$ |
| 7) $\overline{BE} \cong \overline{EC}$ | 7) segment bisector thm |
| 8) $\Delta ABC \cong \Delta DCE$ | 8) ASA |
| 9) $\overline{AB} \cong \overline{DC}$ | 9) CPCTC |