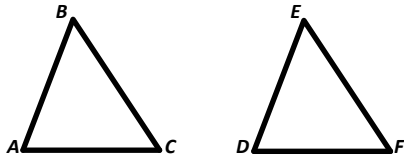
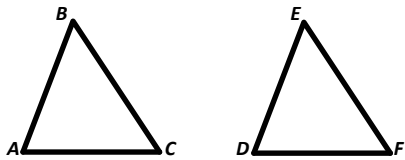


Proving Congruent Triangles

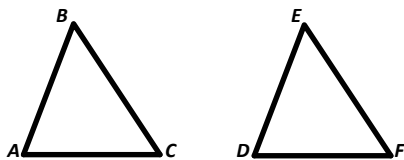
Side-Side-Side Postulate (SSS) - If the sides of one triangle are congruent to the sides of a second triangle, then the triangles are congruent.



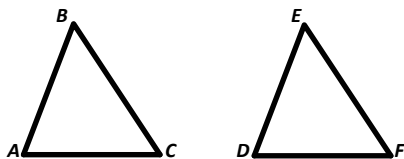
Side-Angle-Side Postulate (SAS) - If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the triangles are congruent.



Angle-Side-Angle Postulate (ASA) - If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent.



Angle-Angle-Side Theorem (AAS) - If two angles and a nonincluded side of one triangle are congruent to the corresponding two angles and side of a second triangle, then the triangles are congruent.



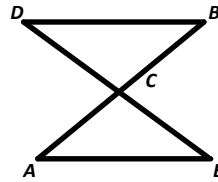
C.P.C.T.C. - Corresponding Parts of Congruent Triangles are Congruent

Directions: Write a proof for each.

1. Given: $\angle D \cong \angle E$

C is the midpoint of \overline{DE}

Prove: $\triangle DBC \cong \triangle EAC$



Statement

1. $\angle D \cong \angle E$

C is the midpoint of \overline{DE}

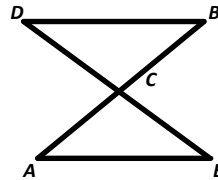
Reason

1. Given

2. Given: \overline{DE} bisects \overline{BA}

\overline{BA} bisects \overline{DE}

Prove: $\triangle DBC \cong \triangle EAC$



Statement

1. \overline{DE} bisects \overline{BA}

\overline{BA} bisects \overline{DE}

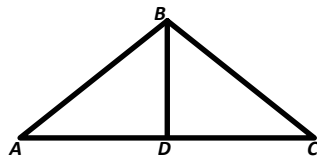
Reason

1. Given

3. Given: $\triangle ABC$ is an isosceles triangle with vertex $\angle ABC$

D is the midpoint of \overline{AC}

Prove: $\triangle ABD \cong \triangle CBD$



Statement

1. $\triangle ABC$ is an isosceles triangle with vertex $\angle ABC$

D is the midpoint of \overline{AC}

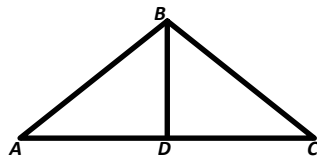
Reason

1. Given

4. Given: $\overline{BD} \perp \overline{AC}$

\overline{BD} bisects \overline{AC}

Prove: $\triangle ABD \cong \triangle CBD$



Statement

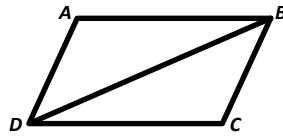
1. $\overline{BD} \perp \overline{AC}$

\overline{BD} bisects \overline{AC}

Reason

1. Given

5. Given: $\overline{AB} \parallel \overline{DC}$
 $\overline{BC} \parallel \overline{AD}$
 Prove: $\angle A \cong \angle C$



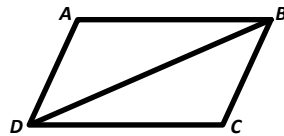
Statement

- $\overline{AB} \parallel \overline{DC}$
 $\overline{BC} \parallel \overline{AD}$

Reason

- Given

6. Given: $\angle ADB \cong \angle CBD$
 $\overline{DA} \cong \overline{BC}$
 Prove: $\overline{AB} \cong \overline{CD}$



Statement

- $\angle ADB \cong \angle CBD$
 $\overline{DA} \cong \overline{BC}$

Reason

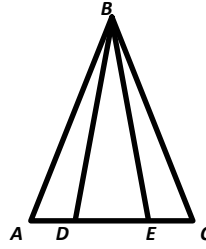
- Given

7. Given: $\angle BDE \cong \angle BED$

$$\angle A \cong \angle C$$

$$\overline{AD} \cong \overline{CE}$$

Prove: $\triangle BAE \cong \triangle BCD$



Statement

1. $\angle BDE \cong \angle BED$

$$\angle A \cong \angle C$$

$$\overline{AD} \cong \overline{CE}$$

Reason

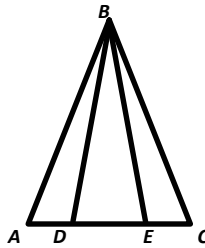
1. Given

8. Given: $\angle ABE \cong \angle CBD$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Prove: $\triangle ABD \cong \triangle CBE$



Statement

1. $\angle ABE \cong \angle CBD$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Reason

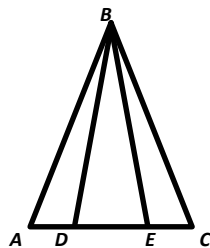
1. Given

9. Given: $\angle ABD \cong \angle CBE$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Prove: $\overline{AE} \cong \overline{CD}$



Statement

1. $\angle ABD \cong \angle CBE$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Reason

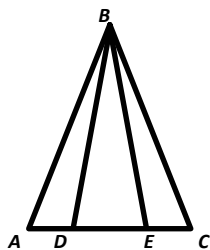
1. Given

10. Given: $\overline{AE} \cong \overline{CD}$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Prove: $\overline{DB} \cong \overline{EB}$



Statement

1. $\overline{AE} \cong \overline{CD}$

$$\angle A \cong \angle C$$

$$\overline{AB} \cong \overline{CB}$$

Reason

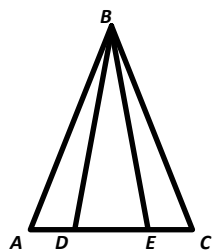
1. Given

11. Given: $\triangle ABC$ is an isosceles triangle with base \overline{AC}

$$\angle BDE \cong \angle BED$$

$$\angle A \cong \angle C$$

Prove: $\triangle ABE \cong \triangle CBD$



Statement

1. $\triangle ABC$ is an isosceles triangle with base \overline{AC}

$$\angle BDE \cong \angle BED$$

$$\angle A \cong \angle C$$

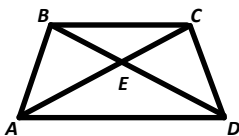
Reason

1. Given

12. Given: $\angle ABE \cong \angle DCE$

$$\angle EAD \cong \angle EDA$$

Prove: $\overline{BA} \cong \overline{CD}$



Statement

1. $\angle ABE \cong \angle DCE$

$$\angle EAD \cong \angle EDA$$

Reason

1. Given

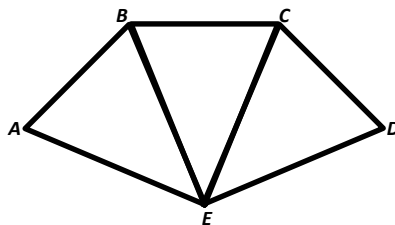
13. Given: $\angle A \cong \angle ABE$

$$\angle ECD \cong \angle D$$

$$\angle A \cong \angle D$$

$$\overline{AE} \cong \overline{DE}$$

Prove: $\triangle BEC$ is an isosceles triangle



Statement

1. $\angle A \cong \angle ABE$

$$\angle ECD \cong \angle D$$

$$\angle A \cong \angle D$$

$$\overline{AE} \cong \overline{DE}$$

Reason

1. Given