

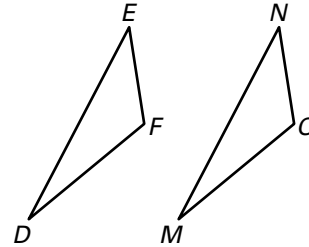
LESSON 4.5

Practice B

For use with pages 259–265

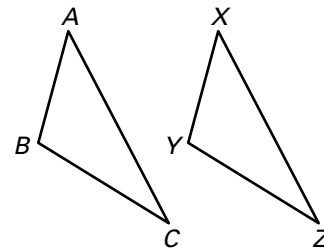
State the third congruence that is needed to prove that $\triangle DEF \cong \triangle MNO$ using the given postulate or theorem.

1. **GIVEN:** $\overline{DE} \cong \overline{MN}$, $\angle M \cong \angle D$, $\underline{\quad} \cong \underline{\quad}$
Use the SAS Congruence Postulate.
2. **GIVEN:** $\overline{FE} \cong \overline{ON}$, $\angle F \cong \angle O$, $\underline{\quad} \cong \underline{\quad}$
Use the AAS Congruence Theorem.
3. **GIVEN:** $\overline{DF} \cong \overline{MO}$, $\angle F \cong \angle O$, $\underline{\quad} \cong \underline{\quad}$
Use the ASA Congruence Postulate.

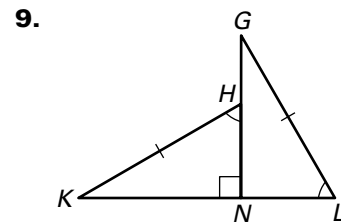
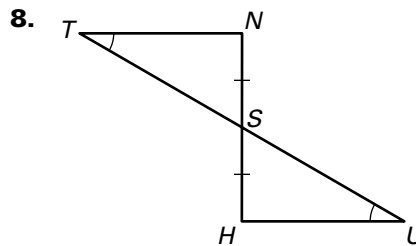
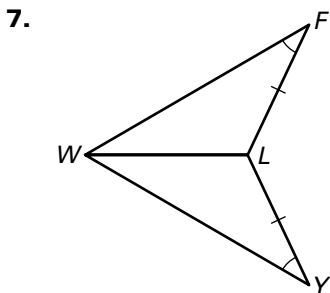


State the third congruence that is needed to prove that $\triangle ABC \cong \triangle XYZ$ using the given postulate or theorem.

4. **GIVEN:** $\angle A \cong \angle X$, $\angle B \cong \angle Y$, $\underline{\quad} \cong \underline{\quad}$
Use the AAS Congruence Theorem.
5. **GIVEN:** $\angle A \cong \angle X$, $\overline{AB} \cong \overline{XY}$, $\underline{\quad} \cong \underline{\quad}$
Use the ASA Congruence Postulate.
6. **GIVEN:** $\overline{BC} \cong \overline{YZ}$, $\angle C \cong \angle Z$, $\underline{\quad} \cong \underline{\quad}$
Use the AAS Congruence Theorem.



Is it possible to prove that the triangles are congruent? If so, state the postulate(s) or theorem(s) you would use.



Tell whether you can use the given information to determine whether $\triangle JRM \cong \triangle XYZ$. Explain your reasoning.

- | | |
|---|---|
| 10. $\overline{JM} \cong \overline{XZ}$, $\angle M \cong \angle Z$, $\angle R \cong \angle Y$ | 11. $\overline{JM} \cong \overline{XZ}$, $\overline{JR} \cong \overline{XY}$, $\angle J \cong \angle X$ |
| 12. $\angle J \cong \angle X$, $\angle M \cong \angle Z$, $\angle R \cong \angle Y$ | 13. $\angle M \cong \angle Z$, $\angle R \cong \angle Y$, $\overline{JM} \cong \overline{XY}$ |

LESSON
4.5

Practice B *continued*

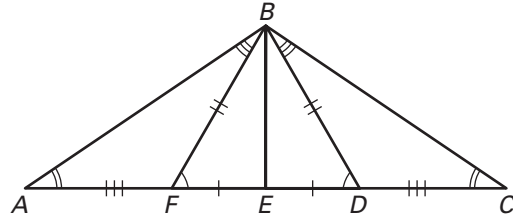
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Explain how you can prove that the indicated triangles are congruent using the given postulate or theorem.

14. $\triangle BEF \cong \triangle BED$ by SAS

15. $\triangle ADB \cong \triangle CFB$ by ASA

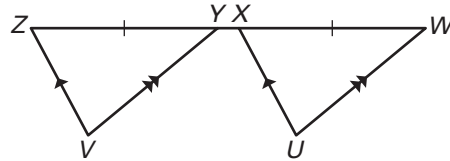
16. $\triangle AFB \cong \triangle CDB$ by AAS



17. **Proof** Complete the proof.

GIVEN: $\overline{WU} \parallel \overline{YV}$, $\overline{XU} \parallel \overline{ZV}$, $\overline{WX} \cong \overline{YZ}$

PROVE: $\triangle WXU \cong \triangle YZV$



Statements

1. $\overline{WU} \parallel \overline{YV}$

2. $\angle UWX \cong \angle VYZ$

3. $\overline{XU} \parallel \overline{ZV}$

4. $\angle UXW \cong \angle VZY$

5. $\overline{WX} \cong \overline{YZ}$

6. $\triangle WXU \cong \triangle YZV$

Reasons

1. ?

2. ?

3. ?

4. ?

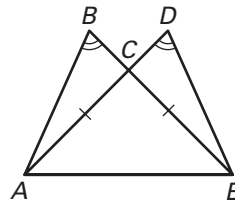
5. ?

6. ?

18. **Proof** Write a proof.

GIVEN: $\angle B \cong \angle D$, $\overline{AC} \cong \overline{EC}$

PROVE: $\triangle ABC \cong \triangle EDC$



Lesson 4.5, continued

16. Two pairs of corresponding angles ($\angle ABE \cong \angle CDE$, $\angle BEA \cong \angle DEC$) and the corresponding included sides ($\overline{BE} \cong \overline{DE}$) are congruent. **17.** Two pairs of corresponding angles ($\angle ABE \cong \angle CDE$, $\angle BEA \cong \angle DEC$) and the corresponding non-included sides ($\overline{AE} \cong \overline{CE}$) are congruent. **18.** **1.** Given; **2.** Given; **3.** Reflexive Property of Congruence; **4.** SSS Congruence Postulate

19. It is given that $\overline{BE} \cong \overline{BC}$ and $\angle A \cong \angle D$. By the Vertical Angles Theorem, $\angle ABE \cong \angle DBC$. $\triangle ABE \cong \triangle DBC$ by the AAS Congruence Theorem.

Practice Level B

1. $\overline{DF} \cong \overline{MO}$ **2.** $\angle D \cong \angle M$ **3.** $\angle D \cong \angle M$
4. $\overline{BC} \cong \overline{YZ}$ or $\overline{AC} \cong \overline{XZ}$ **5.** $\angle B \cong \angle Y$
6. $\angle A \cong \angle X$ **7.** No **8.** Yes, AAS Congruence Theorem; use $\angle TSN \cong \angle USH$ by Vertical Angles Theorem
9. Yes, AAS Congruence Theorem
10. Yes, AAS Congruence Theorem
11. Yes, SAS Congruence Postulate
12. No; three pairs of congruent angles is insufficient to prove triangle congruence.
13. No; two angles and a non-included side are congruent, but the non-included sides are not corresponding parts. **14.** Two pairs of corresponding sides ($\overline{BF} \cong \overline{BD}$, $\overline{EF} \cong \overline{ED}$) and the corresponding included angles ($\angle BFE \cong \angle BDE$) are congruent.
15. Two pairs of corresponding angles ($\angle ADB \cong \angle CFB$, $\angle BAD \cong \angle BCF$) and the corresponding included sides ($\overline{AD} \cong \overline{CF}$) are congruent. **16.** Two pairs of corresponding angles ($\angle ABF \cong \angle CBD$, $\angle BAF \cong \angle BCD$) and the corresponding non-included sides ($\overline{AF} \cong \overline{CD}$) are congruent. **17.** **1.** Given; **2.** Corresponding Angles Postulate; **3.** Given; **4.** Corresponding Angles Postulate; **5.** Given; **6.** ASA Congruence Postulate
18. It is given that $\angle B \cong \angle D$ and that $\overline{AC} \cong \overline{EC}$. By the Vertical Angles Theorem, $\angle BCA \cong \angle DCE$. $\triangle ABC \cong \triangle EDC$ by the AAS Congruence Theorem.

Practice Level C

1. $\overline{FE} \cong \overline{TR}$ or $\overline{DE} \cong \overline{QR}$ **2.** $\angle F \cong \angle T$
3. $\overline{DF} \cong \overline{QT}$ **4.** No **5.** Yes; $\angle KNL \cong \angle MLN$ by Alternate Interior Angles Theorem, $\overline{LN} \cong \overline{LN}$ by Reflexive Property of Congruence, $\triangle KLN \cong \triangle MNL$ by ASA Congruence Postulate
6. Yes; $\overline{TX} \cong \overline{VY}$ by summation of congruent parts, $\overline{YX} \cong \overline{YX}$ by Reflexive Property of Congruence, $\overline{XZ} \cong \overline{YW}$ by summation of congruent parts, $\triangle TXZ \cong \triangle VYW$ by SAS Congruence Theorem **7.** No, $\angle M$ and $\angle Y$ are not corresponding angles. **8.** No, \overline{JR} and \overline{YZ} are not corresponding sides. **9.** Yes, AAS Congruence Theorem **10.** No, the congruent sides are not corresponding sides. **11.** Two pairs of corresponding sides ($\overline{AF} \cong \overline{BF}$, $\overline{FD} \cong \overline{FC}$) and the corresponding included angles ($\angle AFD \cong \angle BFC$, by Vertical Angles Theorem) are congruent. **12.** Two pairs of corresponding angles ($\angle ACE \cong \angle DBA$, $\angle AEC \cong \angle DAB$) and the a corresponding non-included side ($\overline{AC} \cong \overline{DB}$, by summation of congruent parts) are congruent.
13. $\angle ACD \cong \angle ABD$ is given. $\angle BDC \cong \angle ABD$ by Alternate Interior Angles Theorem. $\angle ACD \cong \angle BDC$ by Transitive Property of Congruence. $\overline{DC} \cong \overline{DC}$ by Reflexive Property of Congruence. $\angle ADF \cong \angle BCF$ because $\triangle ADF \cong \triangle BCF$ by SAS Congruence Theorem. Then $\angle ADC \cong \angle BCD$ by summation of congruent parts.
14.

Statements	Reasons
1. $\overline{AB} \parallel \overline{DC}$	1. Given
2. $\angle ADB \cong \angle CBD$	2. Given
3. $\angle ABD \cong \angle CDB$	3. Alternate Interior Angles Theorem
4. $\overline{DB} \cong \overline{DB}$	4. Reflexive Property of Congruence
5. $\triangle ABD \cong \triangle CDB$	5. ASA Congruence Postulate

15. **1.** Given; **2.** Given; **3.** Reflexive Property of Congruence; **4.** AAS Congruence Theorem; **5.** Corresponding parts of congruent triangles are congruent; **6.** Alternate Interior Angles Converse
16. **1.** Given; **2.** Given; **3.** Vertical Angles Theorem; **4.** ASA Congruence Postulate; **5.** Corresponding parts of congruent triangles are congruent.