Lesson 4.3 Practice
For use with pages 233–239

Decide whether the congruence statement is true. Explain your reasoning.
1. \( \triangle ABD \cong \triangle CDB \)
2. \( \triangle RST \cong \triangle RQT \)
3. \( \triangle ABC \cong \triangle DEF \)

Use the given coordinates to determine if \( \triangle ABC \cong \triangle DEF \).
4. \( A(1, 2), B(4, -3), C(2, 5), D(4, 7), E(7, 2), F(5, 10) \)
5. \( A(1, 1), B(4, 0), C(7, 5), D(4, -5), E(6, -6), F(9, -1) \)
6. \( A(2, -2), B(5, 1), C(4, 8), D(7, 5), E(10, 8), F(9, 13) \)
7. \( A(-3, 0), B(6, 2), C(-1, 9), D(4, -10), E(13, -8), F(6, -1) \)

Decide whether the figure is stable. Explain your reasoning.
8. 
9. 
10. 

Yes, SSS

Yes, SSS

Yes, SSS

Not stable

Yes, SSS
Determine whether $\triangle ABC \cong \triangle DEF$. Explain your reasoning.

11. $\text{No, SSS}$

12. $\text{No! ZF1}$

13. Proof Complete the proof.

GIVEN: $AB \cong CD$, $BC \cong AD$

PROVE: $\triangle ABC \cong \triangle CDA$

<table>
<thead>
<tr>
<th>Statements</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. $AB \cong CD$</td>
<td>1. Given</td>
</tr>
<tr>
<td>2. $BC \cong AD$</td>
<td>2. Given</td>
</tr>
<tr>
<td>3. $AC \cong AC$</td>
<td>3. Reflexive</td>
</tr>
<tr>
<td>4. $\triangle ABC \cong \triangle CDA$</td>
<td>4. SSS</td>
</tr>
</tbody>
</table>
14. Proof Complete the proof:

**GIVEN:** $AB \cong CB$, $D$ is the midpoint of $AC$.

**PROVE:** $\triangle ABD \cong \triangle CBD$

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<tr>
<td>1. $AB \cong CB$</td>
<td>1. ? given</td>
</tr>
<tr>
<td>2. $D$ is the midpoint of $AC$</td>
<td>2. ? given</td>
</tr>
<tr>
<td>3. $AD \cong CD$</td>
<td>3. ? Def. of midpoint</td>
</tr>
<tr>
<td>4. $BD \cong BD$</td>
<td>4. ? Reflexive</td>
</tr>
<tr>
<td>5. $\triangle ABD \cong \triangle CBD$</td>
<td>5. ? SSS</td>
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</table>

15. **Picture Frame** The backs of two different picture frames are shown below. Which picture frame is stable? *Explain* your reasoning.

- Stable
- Congruent $\triangle$'s
- Make up the shape

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Use the diagram to name the included angle between the given pair of sides.

1. $\overline{AB}$ and $BC$
   \[
   \angle ABC
   \]
2. $\overline{BC}$ and $CD$
   \[
   \angle BCD \text{ or } \angle C
   \]
3. $\overline{AB}$ and $BD$
   \[
   \angle ABD
   \]
4. $\overline{BD}$ and $DA$
   \[
   \angle BDA
   \]
5. $\overline{DA}$ and $\overline{AB}$
   \[
   \angle DAB \text{ or } \angle A
   \]
6. $\overline{CD}$ and $\overline{DB}$
   \[
   \angle CDB
   \]

Decide whether enough information is given to prove that the triangles are congruent using the SAS Congruence Postulate.

7. $\triangle MAE, \triangle TAE$
   \[
   \text{no, } \text{Ass is not a postulate}
   \]
8. $\triangle DKA, \triangle SKT$
   \[
   \text{yes, SAS}
   \]
9. $\triangle JRM, \triangle JTM$
   \[
   \text{no, not enough info}
   \]

Decide whether enough information is given to prove that the triangles are congruent. If there is enough information, state the congruence postulate or theorem you would use.

10. $\triangle ABC, \triangle DEF$
   \[
   \text{yes, SAS}
   \]
11. $\triangle MNO, \triangle RON$
   \[
   \text{yes, HL}
   \]
12. $\triangle ABC, \triangle ADC$
   \[
   \text{no, not enough info}
   \]
State the third congruence that must be given to prove that $\triangle JRM \cong \triangle DFB$ using the indicated postulate.

13. GIVEN: $JR \cong DF, JM \cong DB$, $? \cong ?$
   Use the SSS Congruence Postulate.

14. GIVEN: $JR \cong DF, JM \cong DB$, $? \cong ?$
   Use the SAS Congruence Postulate.

15. GIVEN: $RM \cong FB$, $\angle J$ is a right angle and $\angle J \cong \angle D$, $? \cong ?$
   Use the HL Congruence Theorem.

16. Proof Complete the proof.

   GIVEN: $B$ is the midpoint of $AE$.
   $B$ is the midpoint of $CD$.

   PROVE: $\triangle ABD \cong \triangle EBC$

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<tr>
<td>1. $B$ is the midpoint of $AE$.</td>
<td>1. $? \text{ given}$</td>
</tr>
<tr>
<td>2. $? \overline{DB} \cong \overline{BC}$</td>
<td>2. Definition of midpoint</td>
</tr>
<tr>
<td>3. $B$ is the midpoint of $CD$.</td>
<td>3. $? \text{ given}$</td>
</tr>
<tr>
<td>4. $? \overline{AB} \cong \overline{BE}$</td>
<td>4. Definition of midpoint</td>
</tr>
<tr>
<td>5. $\angle ABD \cong \angle EBC$</td>
<td>5. $\text{vertical } \angle$'s</td>
</tr>
<tr>
<td>6. $\triangle ABD \cong \triangle EBC$</td>
<td>6. $\text{SAS}$</td>
</tr>
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17. **Proof** Complete the proof.

**GIVEN:** \( AB \parallel CD, AB \equiv CD \)

**PROVE:** \( \triangle ABC \equiv \triangle DCB \)

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<td>1. ? given</td>
</tr>
<tr>
<td>2. ( \angle ABC \equiv \angle DCB )</td>
<td>2. ? alternate interior ( \ell )s</td>
</tr>
<tr>
<td>3. ( AB \equiv CD )</td>
<td>3. ? given</td>
</tr>
<tr>
<td>4. ( CB \equiv CB )</td>
<td>4. ? Reflexive</td>
</tr>
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<td>5. ( \triangle ABC \equiv \triangle DCB )</td>
<td>5. ? SAS</td>
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