Section 7.6 Additional Proportions in Triangles

Complete the outline as you view Video Lecture 7.6. Pause the video as needed to fill in the blanks. Then press Play to continue. Also, circle your answer to each numbered exercise.

Objective 1 Use the Side-Splitter Theorem

**Side-Splitter Theorem**

**Theorem**
If a line is parallel to one side of a triangle and intersects the other two sides, then it divides those sides proportionally.

<table>
<thead>
<tr>
<th>If...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \overline{RS} \parallel \overline{XY} )</td>
<td>( \frac{XR}{RQ} = \frac{YS}{SQ} )</td>
</tr>
</tbody>
</table>

**Corollary to the Side-Splitter Theorem**

**Theorem**
If three parallel lines intersect two transversals, then the segments intercepted on the transversals are proportional.

<table>
<thead>
<tr>
<th>If...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>( a \parallel b \parallel c )</td>
<td>( \frac{AB}{BC} = \frac{WX}{XY} )</td>
</tr>
</tbody>
</table>

**Work Video Exercises 1 & 2 with me.**

Solve for \( x \).

1.

![Diagram](image1)

2.

![Diagram](image2)
### Objective 2  Use the Triangle-Angle-Bisector Theorem

<table>
<thead>
<tr>
<th><strong>Theorem</strong></th>
<th><strong>If...</strong></th>
<th><strong>Then...</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>If a ray bisects an angle of a triangle, then it divides the opposite side into two segments that are proportional to the other two sides of the triangle.</td>
<td>$AD$ bisects $\angle CAB$</td>
<td>$\frac{CD}{DB} = \frac{CA}{BA}$</td>
</tr>
</tbody>
</table>

#### Work Video Exercise 3 with me.

3. Solve for $x$.

![Triangle](image)

#### Pause and work Video Exercise 4.

4. Solve for $x$.

![Triangle](image)

Play and check.