

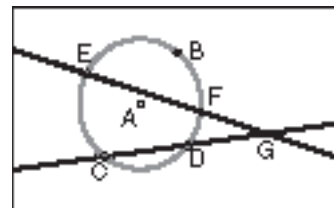
LESSON 11-5 **Technology Lab Recording Sheet** pp. 790–791
Explore Segment Relationships in Circles

Try This

Activity 1

3. Fill in the segment lengths in the chart. Find the products of the lengths of segments on the *same* secant.

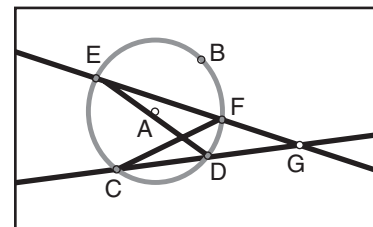
GC	GD	$GC \cdot GD$	GE	GF	$GE \cdot GF$



Can you make a conjecture about the relationship of the segments formed by intersecting secants of a circle?

Try This

1. Make a sketch of the diagram from Activity 1, and create \overline{CF} and \overline{DE} to create $\triangle CFG$ and $\triangle EDG$ as shown.
2. Name pairs of congruent angles in the diagram. How are $\triangle CFG$ and $\triangle EDG$ related? Explain your reasoning.

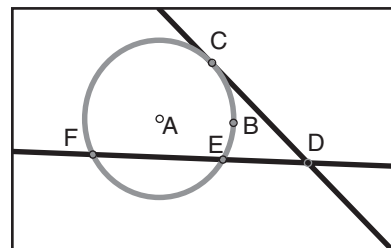


3. Write a proportion involving sides of the triangles. Cross-multiply and state the result. What do you notice?

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Explore Segment Relationships in Circles continued

Activity 2

4. Measure \overline{DC} , \overline{DE} , and \overline{DF} . Drag points around the circle and examine the changes in the measurements. Fill in the measurements in the chart.



DE	DF	$DE \cdot F$	DC	?

Can you make a conjecture about the relationship between the segments of a tangent and a secant of a circle?

Try This

4. How are the products for a tangent and a secant similar to the products for secant segments?

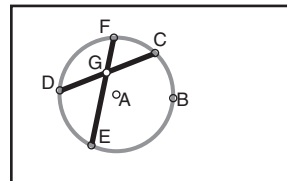
5. Try dragging E and F so they overlap (to make the secant segment look like a tangent segment). What do you notice about the segment lengths you measured in Activity 2? Can you state a relationship about two tangent segments from the same exterior point?

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6. **Challenge:** Write a formal proof of the relationship you found in #2.

Activity 3

3. Fill in the segment lengths in the chart. Find the products of the lengths of segments on the *same* chord.



Can you make a conjecture about the relationship of the segments formed by intersecting chords of a circle?

Try This

7. Connect the endpoints of the chords to form two triangles. Name pairs of congruent angles. How are the two triangles that are formed related? Explain your reasoning.

8. Examine the conclusions you made in all three activities about segments formed by secants, chords, and tangents in a circle. Summarize your findings.
