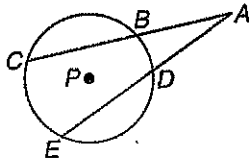


10-7 Study Guide and Intervention *(continued)*

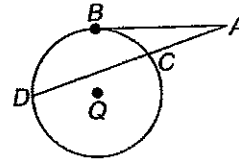
Special Segments in a Circle

Segments Intersecting Outside a Circle If secants and tangents intersect outside a circle, then two products are equal.

- If two secant segments are drawn to a circle from an exterior point, then the product of the measures of one secant segment and its external secant segment is equal to the product of the measures of the other secant segment and its external secant segment.
- If a tangent segment and a secant segment are drawn to a circle from an exterior point, then the square of the measure of the tangent segment is equal to the product of the measures of the secant segment and its external secant segment.



\overline{AC} and \overline{AE} are secant segments.
 \overline{AB} and \overline{AD} are external secant segments.
 $AC \cdot AB = AE \cdot AD$

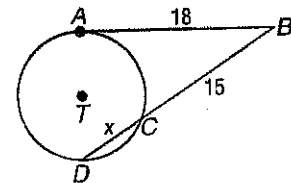


\overline{AB} is a tangent segment.
 \overline{AD} is a secant segment.
 \overline{AC} is an external secant segment.
 $(AB)^2 = AD \cdot AC$

Example Find x to the nearest tenth.

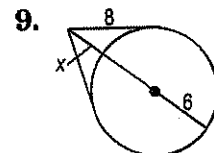
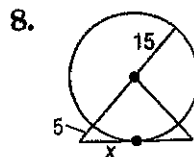
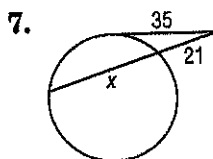
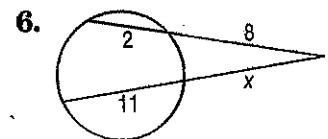
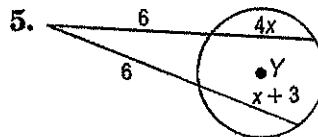
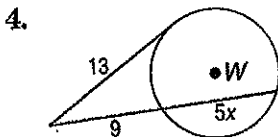
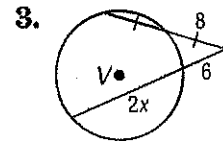
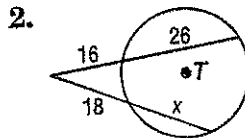
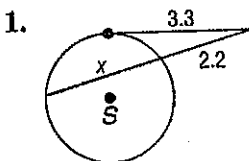
The tangent segment is \overline{AB} , the secant segment is \overline{BD} , and the external secant segment is \overline{BC} .

$$\begin{aligned} (AB)^2 &= BC \cdot BD \\ (18)^2 &= 15(15 + x) \\ 324 &= 225 + 15x \\ 99 &= 15x \\ 6.6 &= x \end{aligned}$$



Exercises

Find x to the nearest tenth. Assume segments that appear to be tangent are tangent.



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