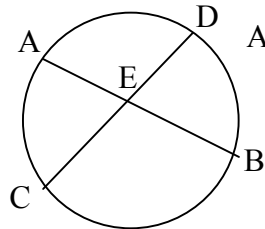


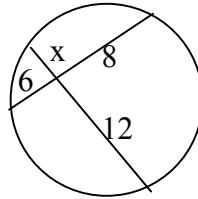
## Circles and Lengths of Segments

### Main Concepts

- a) When two chords intersect inside a circle, the product of the lengths of the segments of one of the chords equals the product of the lengths of the segments of the other chord.

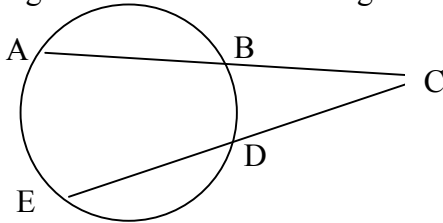


$$AE * EB = CE * DE$$

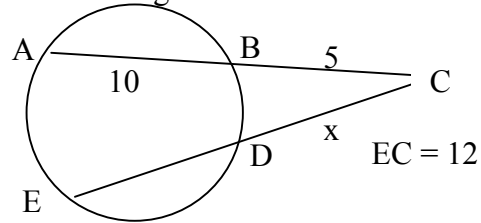


$$\begin{aligned} 6 * 8 &= x * 12 \\ 48 &= 12x \\ 4 &= x \end{aligned}$$

- b) When two secant segments are drawn to a circle from an external point, the product of one secant segment and its external segment equals the product of the lengths of the other secant segment and its external segment.

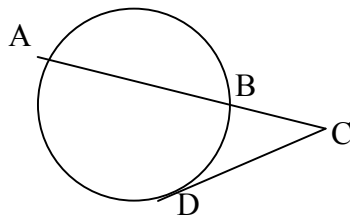


$$AC * BC = EC * DC$$

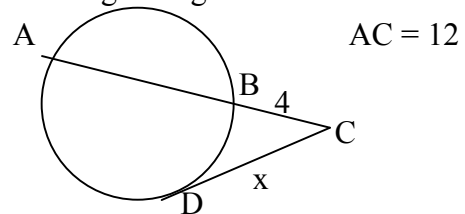


$$\begin{aligned} AB &= 10 \\ 15 * 5 &= 12 * x \\ 75 &= 12x \\ 6.25 &= x \end{aligned}$$

- c) When a secant segment and a tangent segment are drawn to a circle from an external point, the product of the lengths of the secant segment and its external segment is equal to the square of the length of the tangent segment.



$$AC * BC = DC^2$$



$$\begin{aligned} 12 * 4 &= x^2 \\ 48 &= x^2 \\ 6.92 &= x \end{aligned}$$