Arcs and Chords

Central Angle

A central angle is an angle whose vertex is at the center of the circle.

∠VAW and ∠CAB are central angles

Arc

An arc is an unbroken piece of a circle.

$\overset{\frown}{VW}$ and $\overset{\frown}{CB}$ are arcs

Chord

A chord of a circle is a segment whose endpoints are on the circle.

$\overline{VW}$ and $\overline{CB}$ are chords
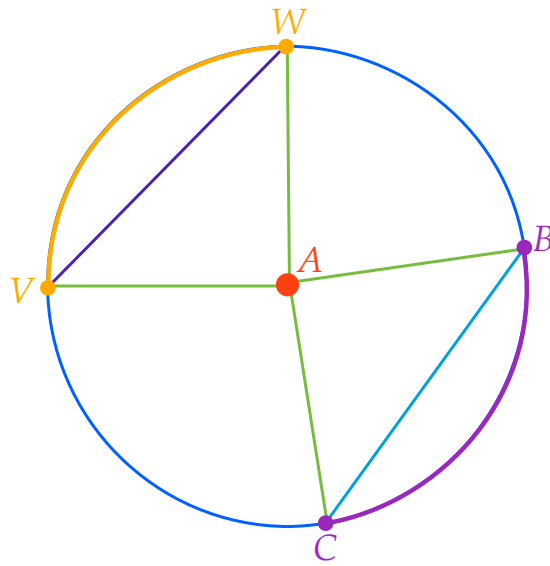
Conclusions

Congruent central angles have congruent chords.

if ∠VAW ≅ ∠CAB, then $\overline{VW}$ ≅ $\overline{CB}$

Congruent chords have congruent arcs.

if $\overline{VW}$ ≅ $\overline{CB}$, then $\overset{\frown}{VW}$ ≅ $\overset{\frown}{CB}$

Congruent arcs have congruent central angles.

if $\overset{\frown}{VW}$ ≅ $\overset{\frown}{CB}$, then ∠VAW ≅ ∠CAB

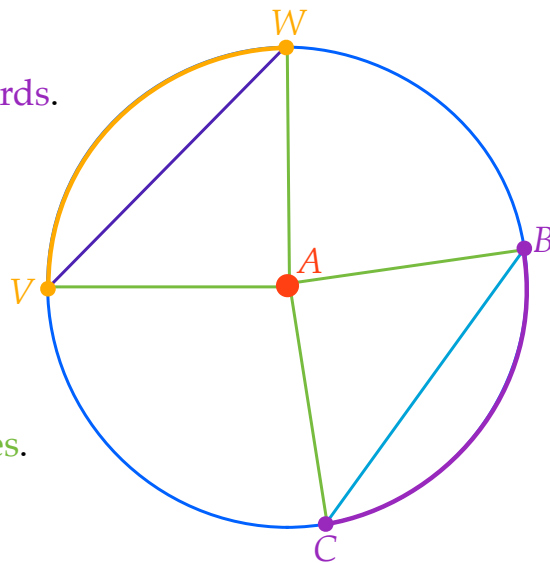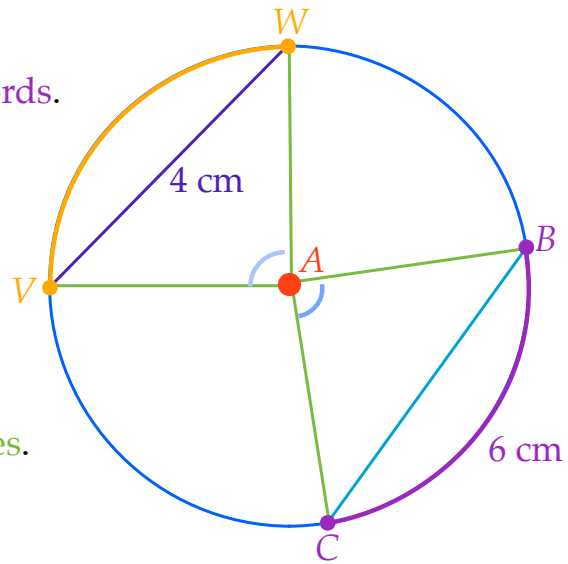## Conclusions

Congruent central angles have congruent chords.
    if $\angle VAW \cong \angle CAB$, then $\overline{VW} \cong \overline{CB}$

Congruent chords have congruent arcs.
    if $\overline{VW} \cong \overline{CB}$, then $\overset{\frown}{VW} \cong \overset{\frown}{CB}$

Congruent arcs have congruent central angles.
    if $\overset{\frown}{VW} \cong \overset{\frown}{CB}$, then $\angle VAW \cong \angle CAB$

4 cm

6 cm
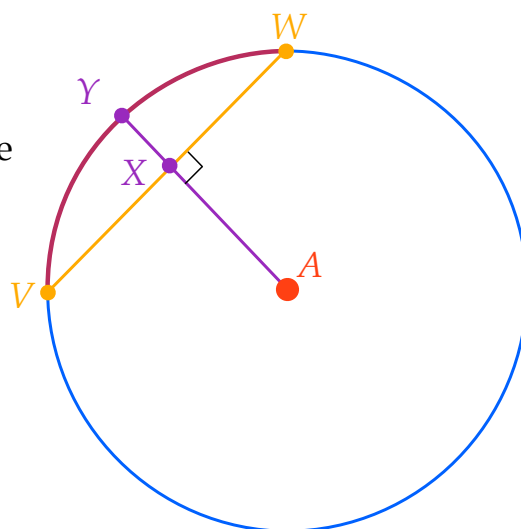
Two chords are congruent <u>if and only if</u> they are equidistant from the center of the circle.
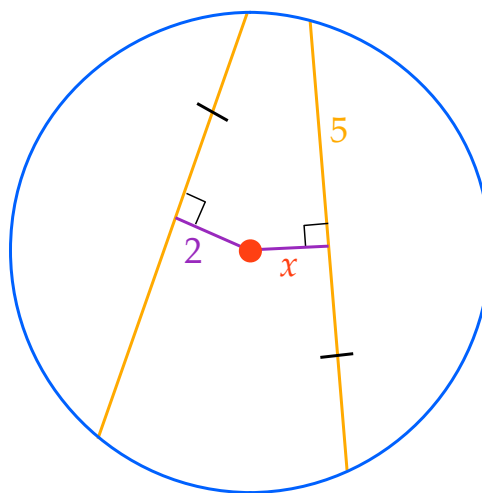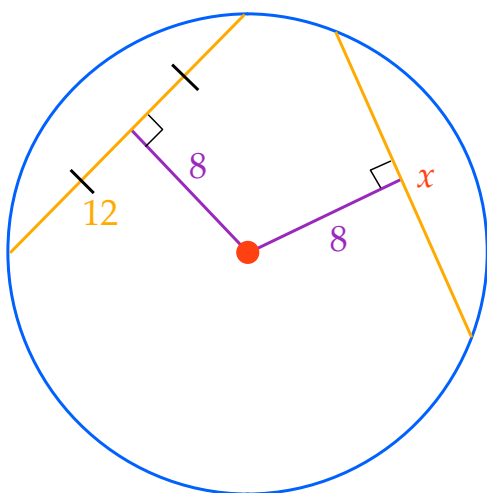
    if $\overline{VW} \cong \overline{CB}$,

    if $AX = AD$,
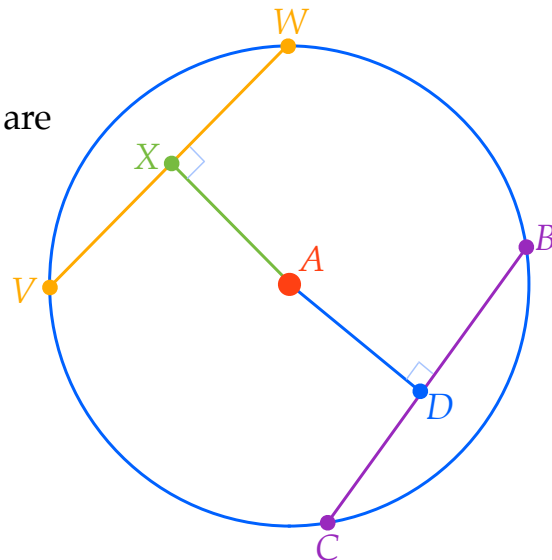
A radius perpendicular to a chord bisects the chord and its arc.

Solve for the value of x.

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