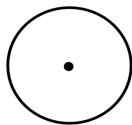


**Finding the Measures of Arcs:**

**Central Angle** - An angle whose vertex is the center of a circle.

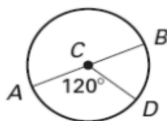


The measure of a minor arc is equal to the measure of its central angle.

The measure of a major arc is defined by the difference between  $360^\circ$  and the measure of its associated minor arc.

Ex. Find the measure of each arc of  $\odot C$ .

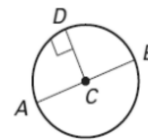
1.  $\widehat{AD}$
2.  $\widehat{ADB}$
3.  $\widehat{DBA}$
4.  $\widehat{BD}$



**Arc Addition Rule** - The measure of an arc formed by 2 adjacent arcs is the sum of the measures of the two arcs.

Ex. Find the measure of each arc of  $\odot C$ .

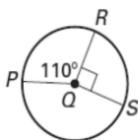
1.  $\widehat{ADB}$
2.  $\widehat{AD}$
3.  $\widehat{DB}$
4.  $\widehat{DBA}$



**Arc Addition Rule** - The measure of an arc formed by 2 adjacent arcs is the sum of the measures of the two arcs.

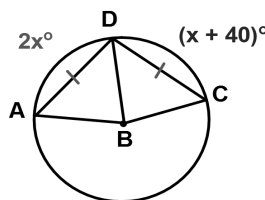
Ex. Find the measure of each arc of  $\odot Q$ .

1.  $\widehat{PR}$
2.  $\widehat{PRS}$
3.  $\widehat{PS}$
4.  $\widehat{RSP}$

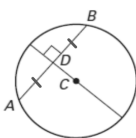


**Congruent Chord and Arc** - In the same circle, or in congruent circles, 2 minor arcs are congruent if and only if their corresponding chords are congruent.

Find  $m\widehat{AD}$ .



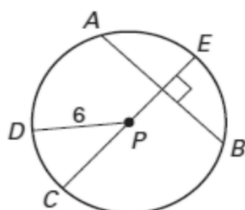
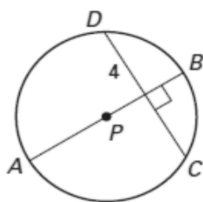
**Diameter Perpendicular to Chord** - If a diameter of a circle is perpendicular to a chord, then the diameter bisects the chord and its arc.



**Perpendicular Bisector of Chord** - If one chord is a perpendicular bisector of another chord, then the first chord is a diameter.

EX. 1:  $DC =$  \_\_\_\_\_

EX. 2:  $EC =$  \_\_\_\_\_



**Congruent Chords** - In the same circle, or in congruent circles, 2 chords are congruent if and only if they are equidistant from the center.

EX. 1:  $PS = 12$   
 $TV = 12$   
 $SQ = 7$   
 Find  $QU$ .

EX. 2:  $AB = DE = 10$   
 radius = 6  
 Find  $x$ .

EX. 3:  $QV = 2$   
 $QU = 2$   
 $SU = 3$   
 Find  $x$ .

