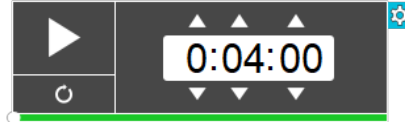
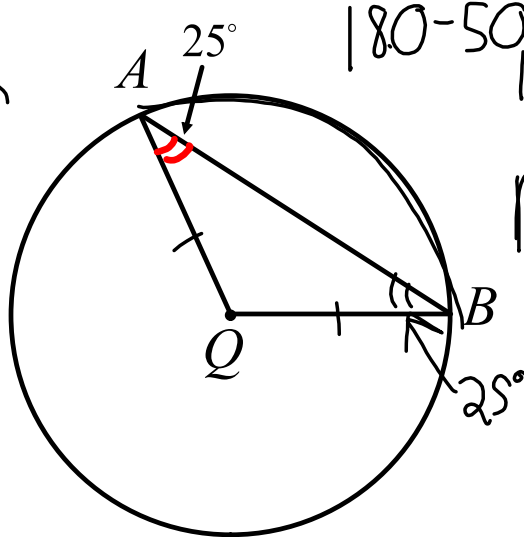


Mental Floss: Wed, May 1<sup>st</sup>



Given:  $\odot Q$

Find:  $m\widehat{AB}$



$$180 - 50 = 130^\circ$$

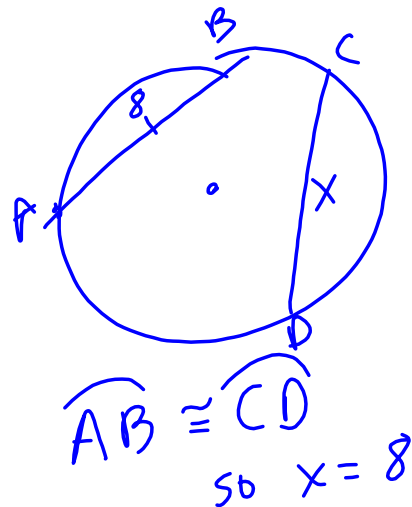
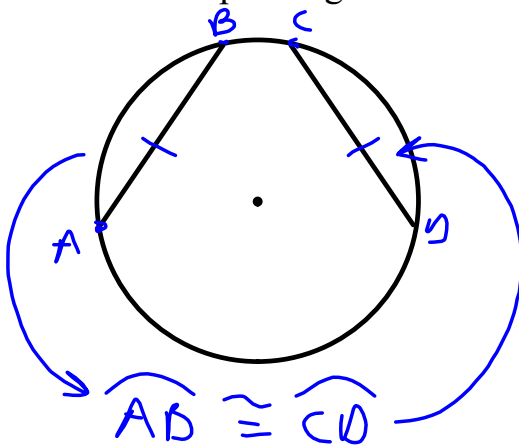
$$m\widehat{AB} = 130^\circ$$

### 10.3 - Chord Theorems

if and only if  $\cong$

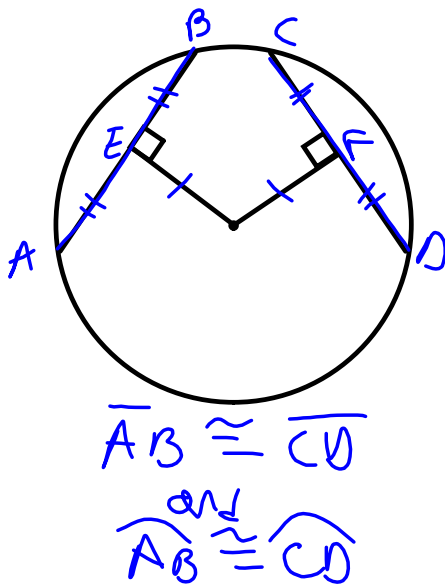
Theorem = In the same or congruent circles, if two chords are congruent, then their corresponding arcs are congruent.

Theorem = In the same or congruent circles, if two arcs are congruent, then their corresponding chords are congruent.



Theorem = If two chords are equidistant from the center of a circle, then they are congruent.

**Important note:** Distance is always measured perpendicular to the chord!

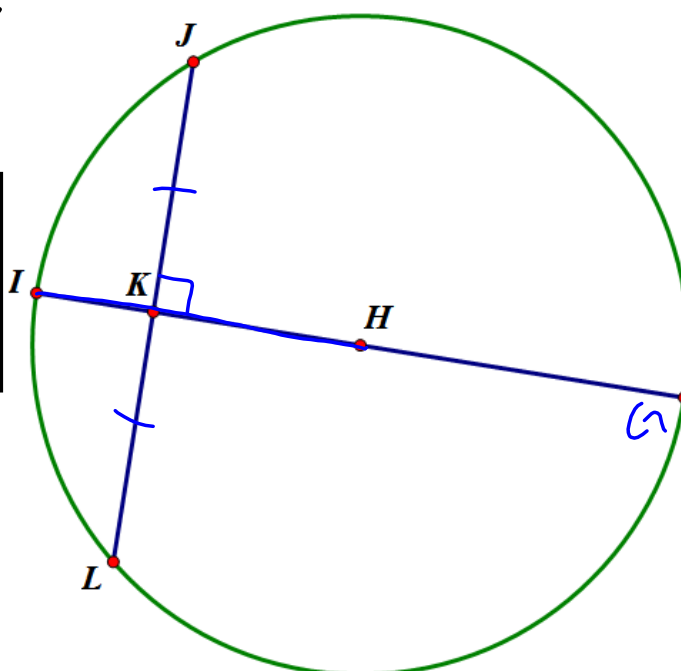


**Theorem:** If a radius is perpendicular to a chord, then it bisects the chord.

**Theorem:** If a radius bisects a chord, then it is perpendicular to the chord.

Any segment starting at the center of the circle.

$\odot H$



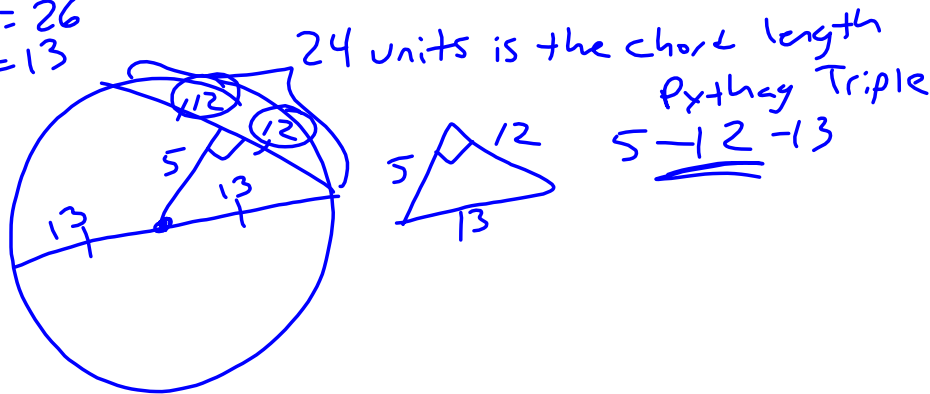
1.  $HI \perp JL$
2.  $JK = KL$
3.  $JK \cdot KL = IK \cdot KH$

Example #1

The diameter of a circle measures 26 units. The distance from the center to the chord is 5 units. Find the length of the chord.

$$D = 26$$

$$r = 13$$

Homework

- 10.3 p.549 #3,5,8,10,16,27,28
- plus #11,12 from alternate textbook (online only)



- 11** Find the distance from the center of a circle to a chord 30 m long if the diameter of the circle is 34 m.
- 12** Find the radius of a circle if a 24-cm chord is 9 cm from the center.

## Answer Key

3.  $75^\circ$

8.  $40^\circ$

14. no;  $CE \neq ED$

17. about 13.9 in.; The perpendicular bisectors intersect at the center, so the right triangle with legs of 6 inches and 3.5 inches have a hypotenuse equal to the length of the radius.

28.  $122^\circ$

5.  $170^\circ$

10. 7

16. 13

27.  $259^\circ$

11. 8 m

12. 15 cm