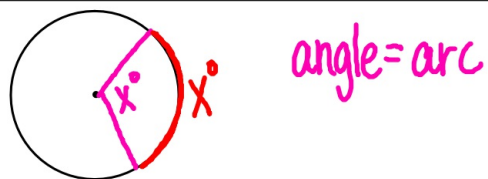


p. 706 10.2 Measuring Angles and Arcs

A Central Angle of a circle is an angle with a vertex in the center of the circle.



minor arc: The measure is less than 180° .

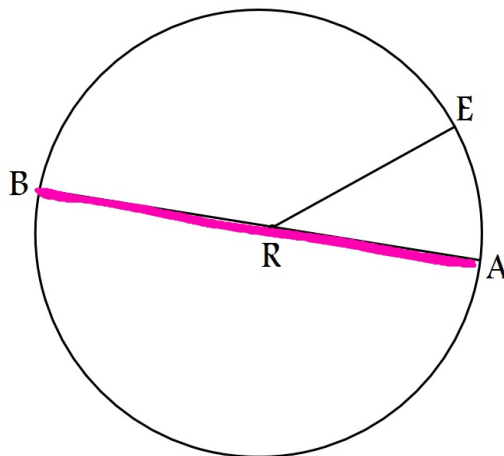
example: \widehat{BE} , \widehat{EA} *use 2 letters!

major arc: The measure is greater than 180° .

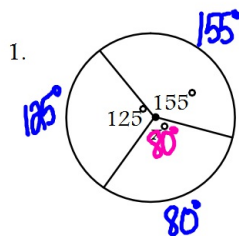
example: \widehat{BAE} , \widehat{EBA} *use 3 letters!

semicircle: The measure is equal to 180° .

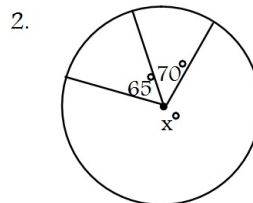
example: \widehat{BA} , \widehat{BEA} *use 2 or 3 letters!



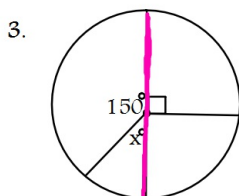
Example 1: Find the value of x.



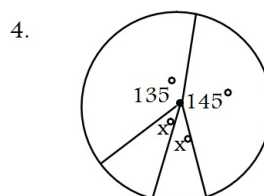
$$\begin{aligned} x + 125 + 155 &= 360 \\ x + 280 &= 360 \\ -280 &-280 \\ \hline x &= 80^\circ \end{aligned}$$



$$\begin{aligned} x + 65 + 70 &= 360 \\ x + 135 &= 360 \\ -135 &-135 \\ \hline x &= 225^\circ \end{aligned}$$



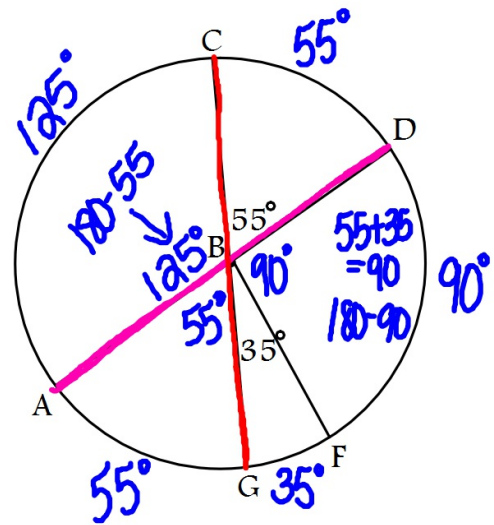
$$\begin{aligned} x + 150 &= 180 \\ -150 &-150 \\ \hline x &= 30^\circ \end{aligned}$$



$$\begin{aligned} x + x + 135 + 145 &= 360 \\ 2x + 280 &= 360 \\ -280 &-280 \\ \hline 2x &= 80 \\ \frac{2x}{2} &= \frac{80}{2} \\ x &= 40^\circ \end{aligned}$$

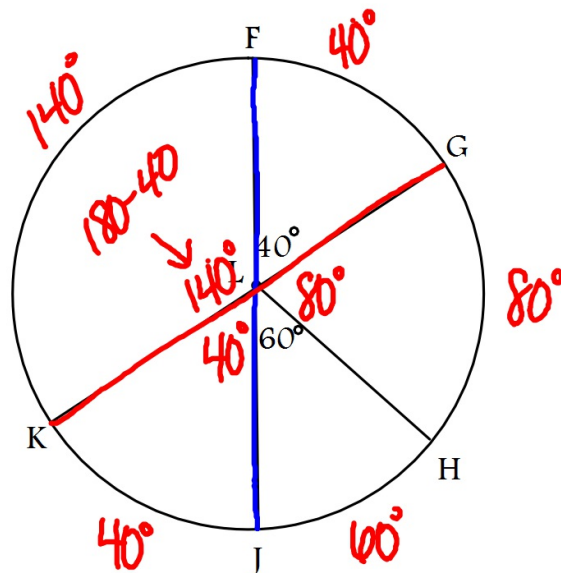
Example 2: Identify each arc as a major arc, minor arc, or semicircle. Then find its measure.

1. $m\widehat{AC}$ 125° minor arc
2. $m\widehat{CFG}$ 180° semicircle
3. $m\widehat{CGD}$ 305° major arc
 $125 + 55 + 35 + 90$
or
 $360 - 55$

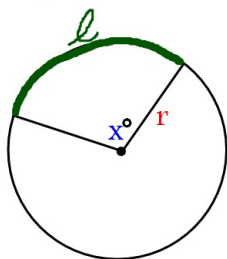


Example 3: Find each measure.

1. $m\widehat{FG}$ 40°
2. $m\widehat{JH}$ 60°
3. $m\widehat{JKF}$ 180°
4. $m\widehat{JFH}$ $360 - 60 = 300^\circ$
5. $m\widehat{HK}$
6. $m\widehat{HGF}$
7. $m\widehat{KFH}$



Example 4: Find the length of each arc. Round to the nearest hundredth.



$$\frac{l}{2\pi r} = \frac{x}{360}$$

1. ^{"l"} \widehat{RS} , if the radius is 2 inches

$$\frac{l}{2\pi(2)} = \frac{130}{360}$$

$$\frac{360l}{360} = \frac{520\pi}{360}$$

$$l = 4.54 \text{ in}$$

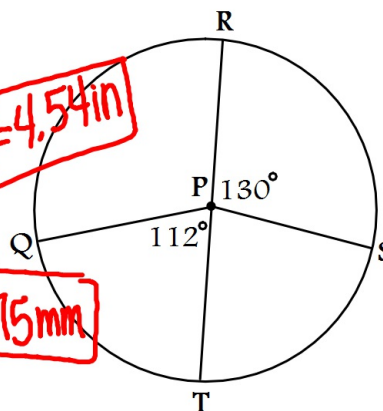
2. \widehat{QR} , if $PS = 4$ millimeters

$$\frac{l}{2\pi(4)} = \frac{68}{360}$$

$$\frac{360l}{360} = \frac{544\pi}{360}$$

$$l = 4.75 \text{ mm}$$

3. \widehat{QRS} , if $RT = 15$ inches



Turn-in:

Quick Check 10.2

HW:

wkbk 10.2 (all)