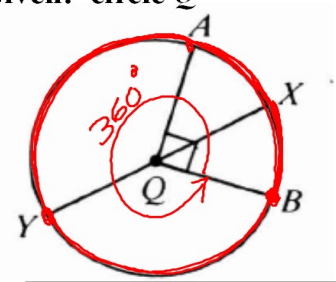
9-3 Arcs and Central Angles

Feb 16

std. 7.0

Given: circle Q



central angles (vertex at center)
$\angle AQX, \angle AQB, \angle BQX, \angle AQY, \angle YQB$

minor arcs ($< \frac{1}{2}\odot$)
$\overset{\frown}{XB}, \overset{\frown}{AX}, \overset{\frown}{AY}, \overset{\frown}{YB}, \overset{\frown}{AB}$

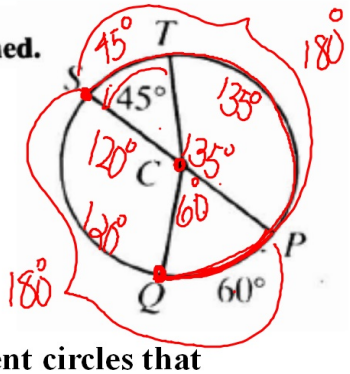
semicircles ($\frac{1}{2}\odot$)
$\overset{\frown}{XBY}, \overset{\frown}{XAY}$

major arc ($> \frac{1}{2}\odot$)
$\overset{\frown}{AYB}, \overset{\frown}{BAY}, \overset{\frown}{XYB}, \overset{\frown}{XBA}$

- **measure of a minor arc = measure of its central angle**
- **measure of semicircle = 180°**
- **sum of all arcs on circle = 360°**
- **Arc Addition Postulate:** $m\overset{\frown}{AX} + m\overset{\frown}{XB} = m\overset{\frown}{AB}$

---

ex. **In $\odot C$, find the measure of each arc or angle named.**



$\angle PCQ = 60°$ $\quad \angle SCQ = 120°$

$\overset{\frown}{SQP} = 180°$ $\quad \overset{\frown}{SPQ} = 240°$ (180+60)

$\overset{\frown}{PT} = 135°$ $\quad \overset{\frown}{SPT} = 315°$ (360−45)

Congruent arcs are arcs in the same circle or congruent circles that have equal measures.

In the same circle or in congruent circles, congruent minor arcs have congruent central angles.