

## 9.2 Angles and Arcs

**Central Angle:** is an angle whose vertex is at the center of a circle.

**Arc:** is a piece of a circle

**Minor Arc:** is less than  $180^\circ$

**Major Arc:** is greater than  $180^\circ$

**Semicircle:** is equal to  $180^\circ$

**Adjacent Arc:** arc of a circle that have exactly one point in common

A circle is  $360^\circ$

## Definition of Arc Measure (page 453)

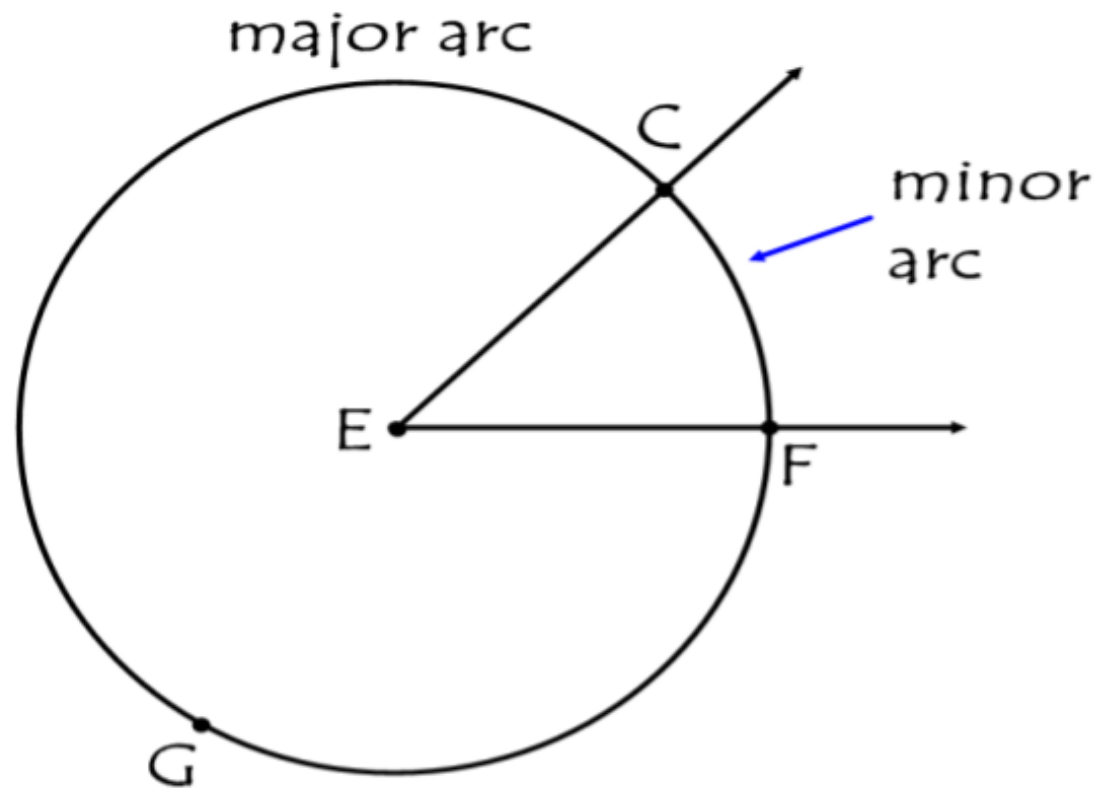
- The measure of a minor arc is the measure of its central angle
- The measure of a major arc is 360 minus the measure of its central angle
- The measure of a semicircle is 180.

## Arc Addition Postulate (Postulate 9-1)

The measure of an arc formed by two adjacent arcs is the sum of the measures of the two arcs.

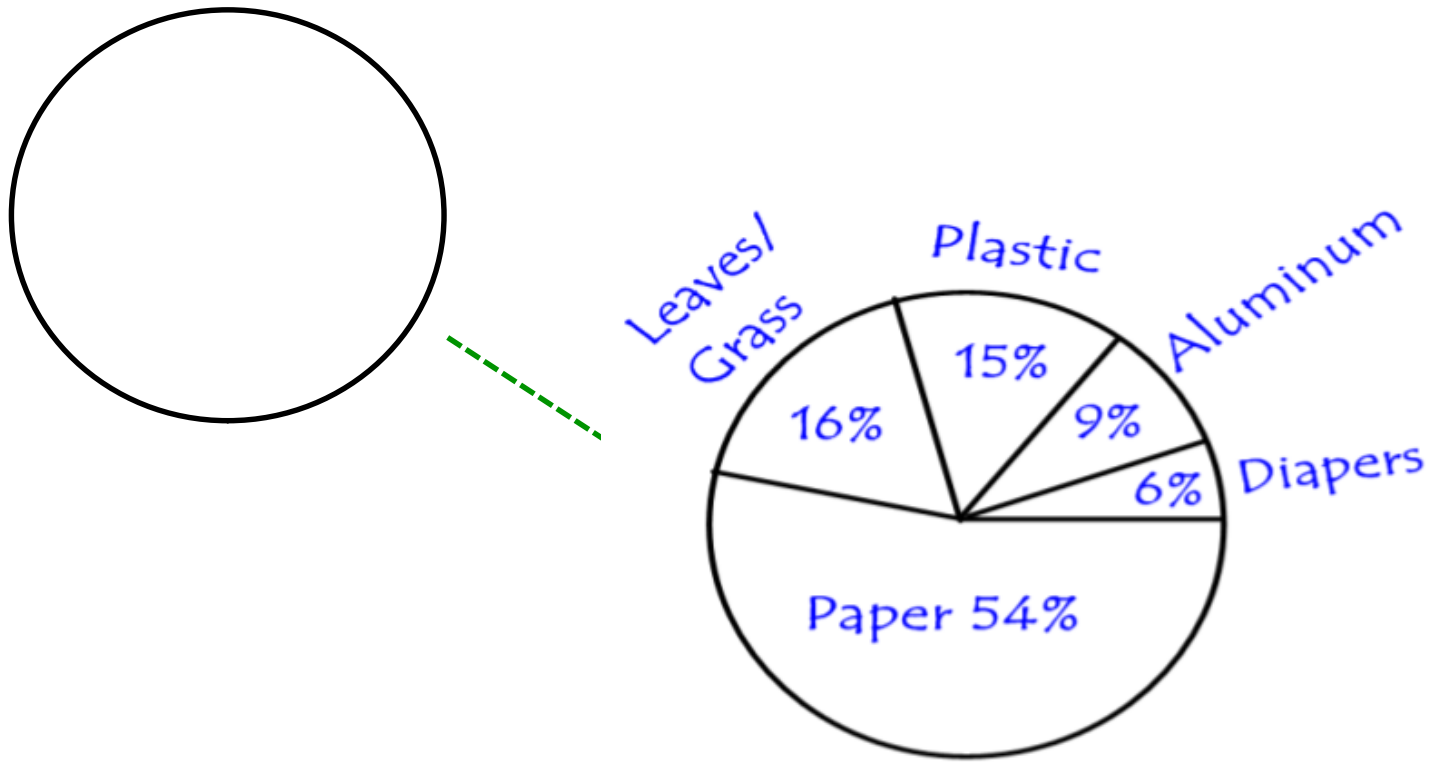
That is, if Q is a point on  $\widehat{PR}$  then

$$m\widehat{PQ} + m\widehat{QR} = m\widehat{PQR}$$



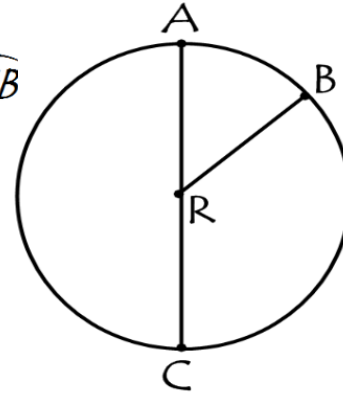
$\angle CEF$  is a central angle

A landfill in Jackson County was analyzed and it was found to contain 6% disposable diapers, 9% aluminum or metal, 15% plastic, 16% leaves and grass, and 54% paper. Draw a circle graph of the data.

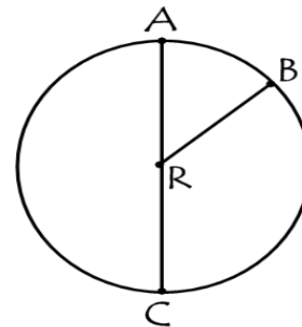


In  $\odot R$ ,  $m\angle ARB = 42$ ,  $RB = 12$ , and  $\overline{AC}$  is a diameter.

1. Find  $m\widehat{AB}$  and  $m\widehat{ACB}$

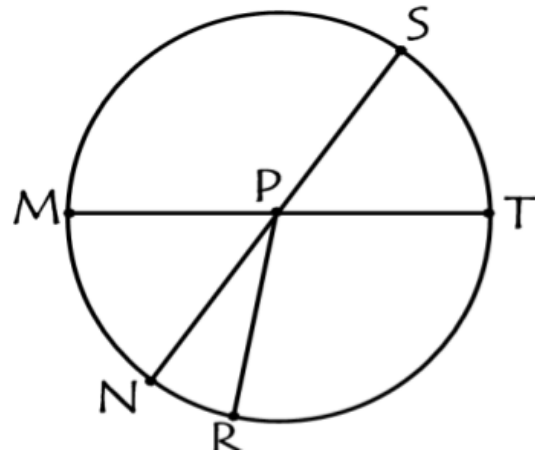


2. Find the length of  $\widehat{AB}$ .



If  $\overline{SN}$  and  $\overline{MT}$  are diameters w/  $m\angle SPT = 51$  and  $m\angle NPR = 29$ , determine whether each arc is a minor arc, a major arc, or a semicircle. Then find the degree measure of each arc.

1.  $m\widehat{NR}$



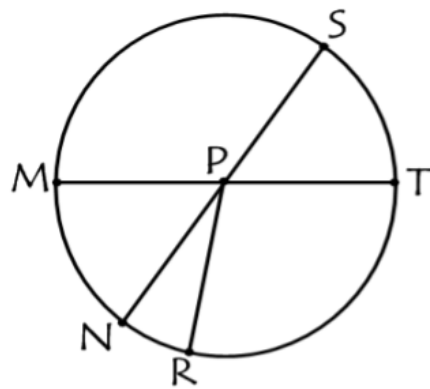
2.  $m\widehat{ST}$

3.  $m\widehat{TSR}$

4.  $m\widehat{MST}$

If  $MT = 15$ , find the length of each arc. Round to the nearest tenth.

29 1.  $\widehat{NR}$



51 2.  $\widehat{ST}$

260 3.  $\widehat{TSR}$

180 4.  $\widehat{MST}$