

Objective: The students will complete assignment 19.2 Angles in Inscribed Quadrilaterals and will demonstrate their understanding with an accuracy rate of 70% or higher on Quiz-20 tomorrow.*

Standards G-SRT. Define trigonometric ratios and solve problems involving right triangles.

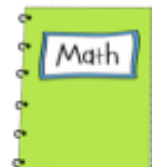
WHAT DO YOU NEED?

Mathematics II

👉 A working Chromebook



👉 Math Notebook



👉 19.2 Angles in Inscribed Quadrilaterals

👉 TURN IN LATE OR MISSING WORK



**If accuracy of 70% or higher is not achieved, the student(s) will be required to retake it.*



my.hrw.com

19.2 Angles in Inscribed Quadrilaterals

19.2

ELECTRONIC DEVICES

The following is a list of items that are not allowed for use in the classroom. Students who are in possession of any of these items will have them confiscated and subjected through proper disciplinary steps listed below. **The item will then be released to a parent or guardian.**

Electronic devices such as cell phones, MP3 players, I-pods, and video games must be picked up by parents after the second offense.

Delhi High School will not be financially responsible for banned electronic devices that are not permitted on campus. The school is not responsible for electronic devices that are picked up by those whom it was confiscated from who may or may not be the rightful owner. The school reserves the right to refuse to conduct any investigations concerning items that are not permitted on campus. Items that are misplaced or borrowed by other students are the sole responsibility of the student.

1st Offense requires that the cell phone/Ipod/device be impounded and **returned to the student on Friday.**

2nd Cell phone/Ipod/device impounded and released only to the parent.

3rd Offense requires a parent conference.

4th Offense may result in an out of **school suspension** for continued defiance.

Items Not Allowed:

- C.D. Players
- MP3 Players
- I-Pods
- Video game devices
- Cigarette Lighters
- Hats

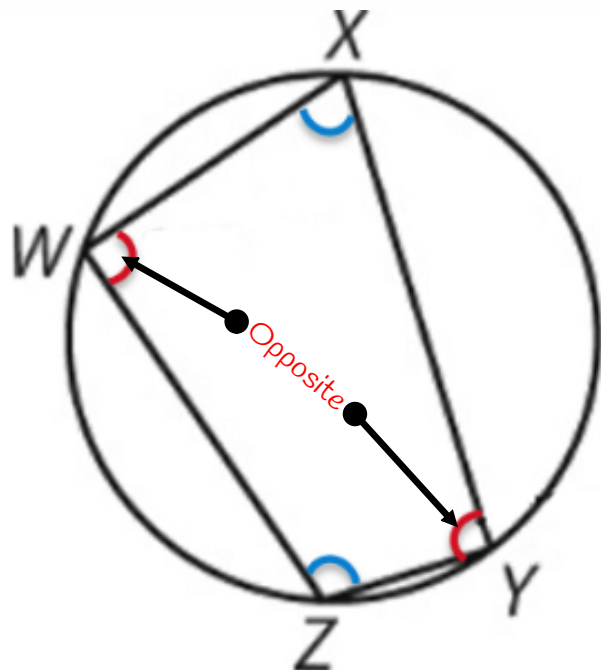
Expectations in this handbook: Preparing you for college and careers.

Inscribed Quadrilateral Theorem:

If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.

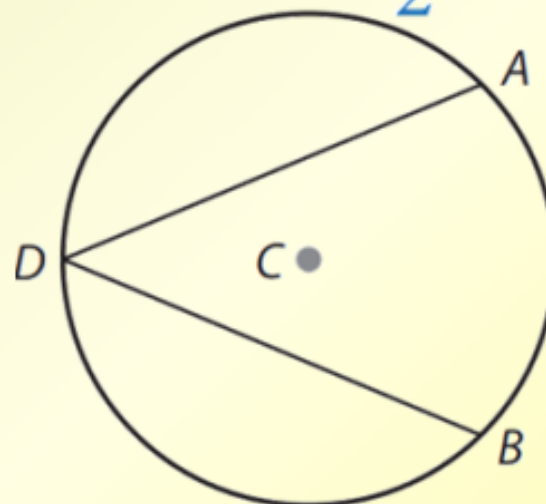
$$m\angle W + m\angle Y = 180^\circ$$

$$m\angle X + m\angle Z = 180^\circ$$



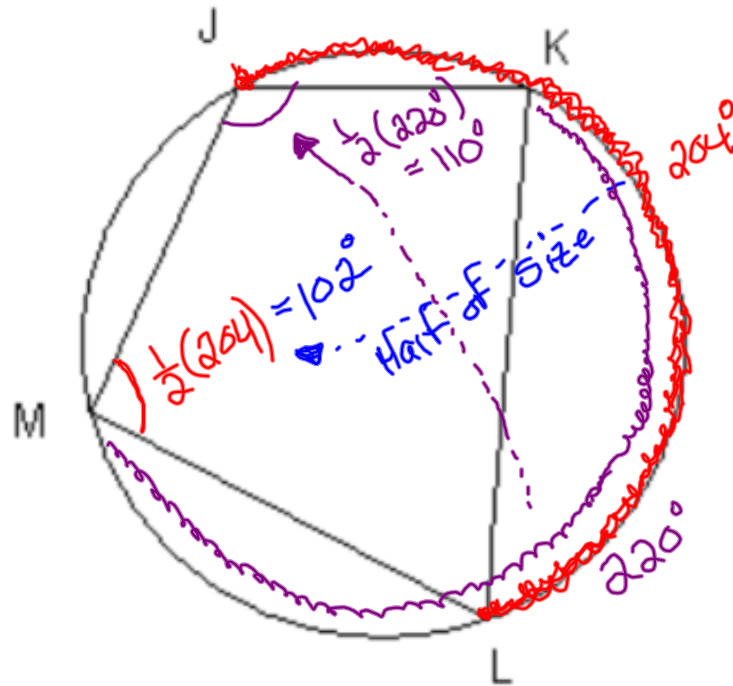
Inscribed Angle Theorem

$$m\angle ADB = \frac{1}{2} m\widehat{AB}$$





In the diagram, $m\widehat{JKL} = 204^\circ$ and $m\widehat{KLM} = 220^\circ$. Find the measures of the angles of quadrilateral $JKLM$.



Inscribed Angle Theorem,

$$m\angle M = \frac{1}{2} m\widehat{JKL} = \frac{1}{2} (204^\circ) = 102^\circ.$$

$$m\angle M = \boxed{102}^\circ$$

$$m\angle J = \frac{1}{2} m\widehat{KLM} = \frac{1}{2} (220^\circ) = 110^\circ.$$

$$m\angle J = \boxed{110}^\circ$$

Inscribed Quadrilateral Theorem

$$m\angle K = 180^\circ - 102^\circ = 78^\circ$$

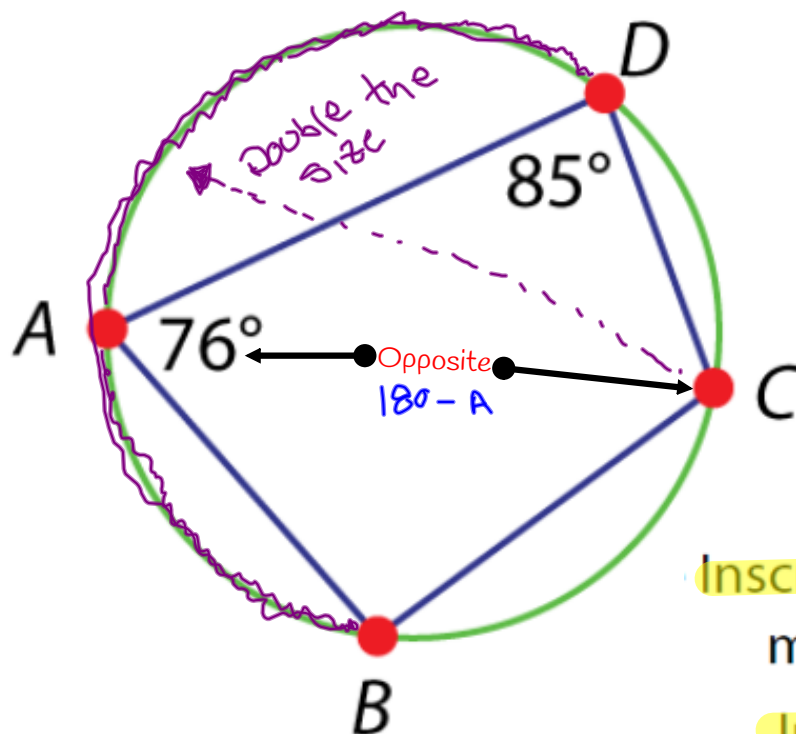
$$m\angle K = \boxed{78}^\circ$$

$$m\angle L = 180^\circ - 110^\circ = 70^\circ$$

$$m\angle L = \boxed{70}^\circ$$

2

Find each measure using the appropriate theorems and postulates.



Inscribed Quadrilateral Theorem
 $m\angle C = 180 - 76^\circ = 104^\circ$.

Inscribed Angle Theorem
 $m\widehat{DAB} = 2(m\angle C) = 2(104) = 208$.

What is $m\widehat{DAB}$?

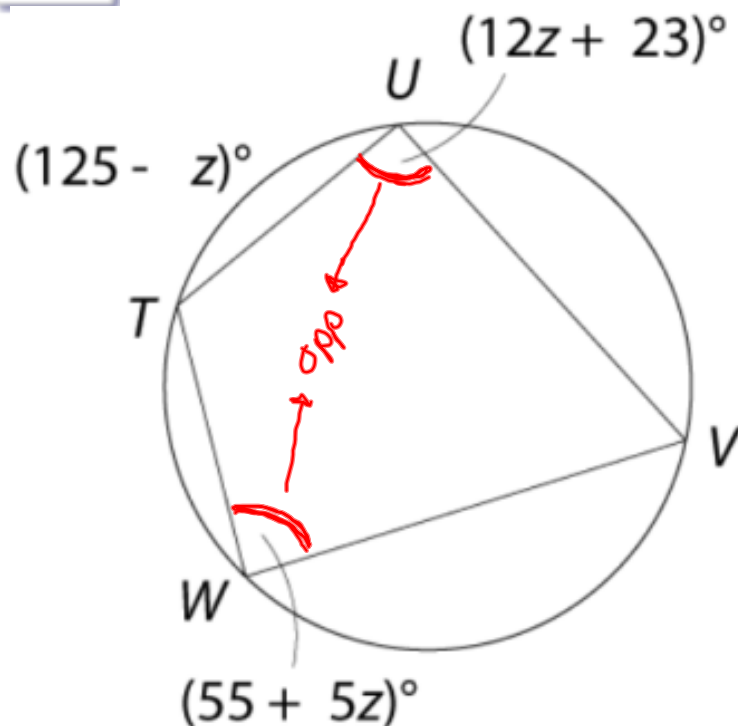
$m\angle C = 104^\circ$ using .

Times by 2.

$m\widehat{DAB} = 208^\circ$ using .

3

Find the measure of each angle of inscribed quadrilateral TUVW.



Find the value of z .

$$m\angle U + m\angle W = 180^\circ$$

$$(12z + 23) + (55 + 5z) = 180$$

$$17z + 78 = 180$$

$$17z = 102$$

$$z = 6$$

Substitute the value of z into each angle expression and evaluate.

$$m\angle T = 125 - z = 125 - 6 = 119^\circ$$

$$m\angle U = (12z + 23) = 12(6) + 23 = 95^\circ$$

$$m\angle W = (55 + 5z) = 55 + 5(6) = 85^\circ$$

Inscribed Quadrilateral Theorem

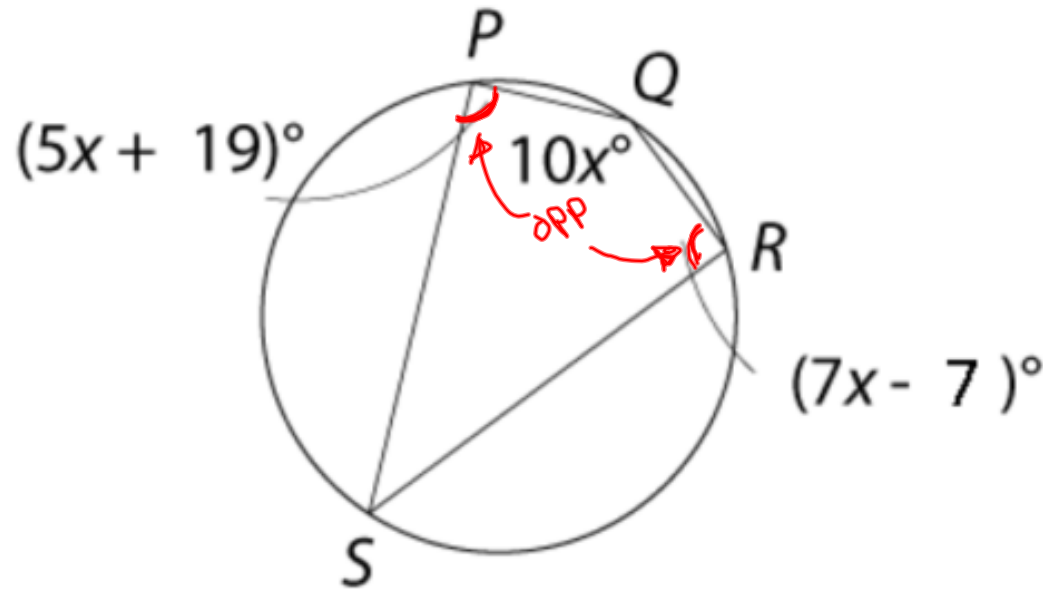
$$m\angle V + m\angle T = 180^\circ$$

$$m\angle V + 119^\circ = 180^\circ \text{ Substitute.}$$

$$m\angle V = 61^\circ$$

4

Find the angle measures of each inscribed quadrilateral.

**Find the value of x .**

$$m\angle P + m\angle R = 180^\circ$$

$$(5x + 19) + (7x - 7) = 180$$

$$12x + 12 = 180$$

$$12x = 168$$

$$x = 14$$

Substitute the value of x into each angle expression and evaluate.

$$m\angle P = (5x + 19) = 5(14) + 19 = 89^\circ$$

$$m\angle R = (7x - 7) = 7(14) - 7 = 91^\circ$$

$$m\angle Q = 10x = 10(14) = 140^\circ$$

Inscribed Quadrilateral Theorem

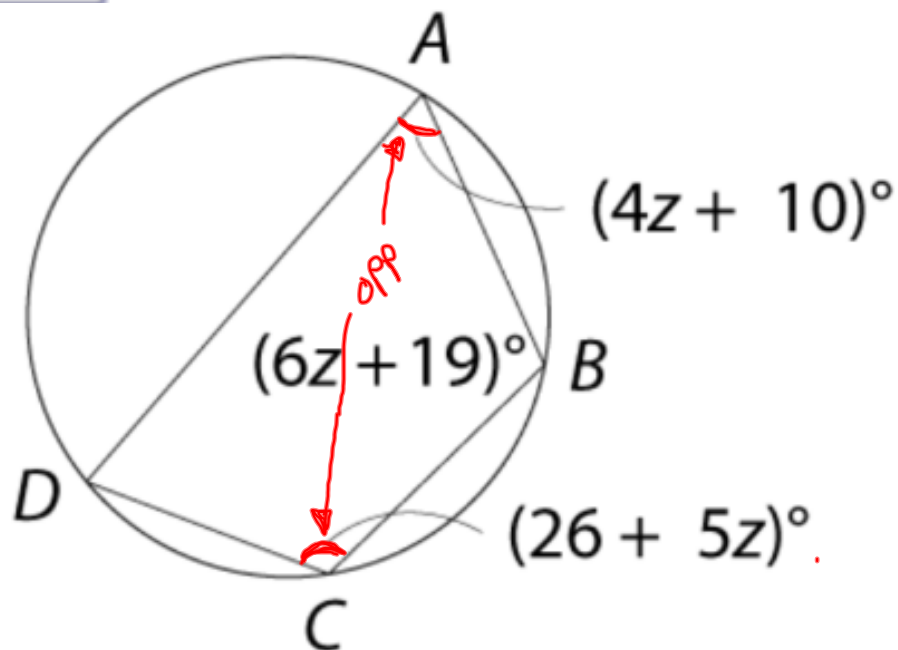
$$m\angle S + m\angle Q = 180^\circ$$

$$m\angle S + 140^\circ = 180^\circ$$

$$m\angle S = 40^\circ$$

5

Find the angle measures of each inscribed quadrilateral.

**Find the value of z .**

$$m\angle A + m\angle C = 180^\circ$$

$$(4z + 10) + (26 + 5z) = 180$$

$$9z + 36 = 180$$

$$9z = 144$$

$$z = 16$$

Substitute the value of z into each angle expression and evaluate.

$$m\angle A = (4z + 10) = 4(16) + 10 = 74^\circ$$

$$m\angle C = (26 + 5z) = 26 + 5(16) = 106^\circ$$

$$m\angle B = 6z + 19 = 6(16) + 19 = 115^\circ$$

Inscribed Quadrilateral Theorem

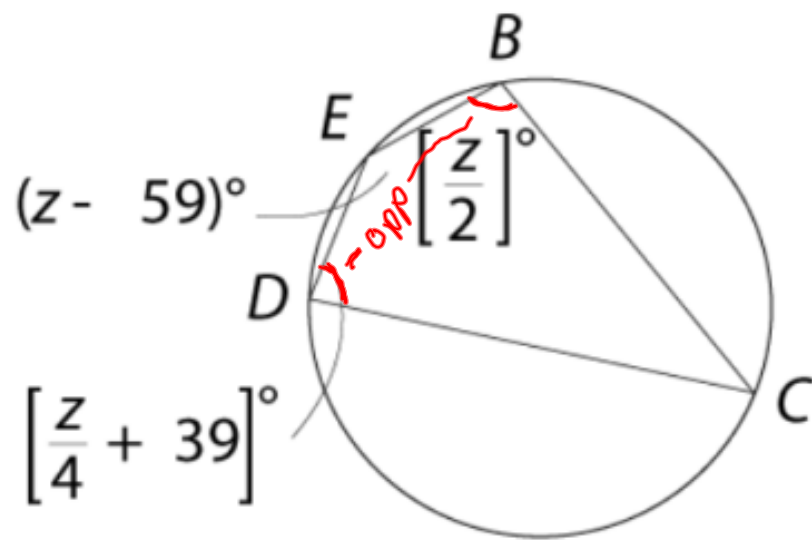
$$m\angle D + m\angle B = 180^\circ$$

$$m\angle D + 115^\circ = 180^\circ$$

$$m\angle D = 65^\circ$$

6

Find the angle measures of each inscribed quadrilateral.

Find the value of z .

$$m\angle D + m\angle B = 180^\circ$$

$$\left(\frac{z}{4} + 39\right) + \frac{z}{2} = 180$$

Side math

$$\frac{z}{4} + \frac{z}{2} \cdot \frac{2}{2}$$

$$\frac{z}{4} + \frac{2z}{4} = \frac{3z}{4}$$

$$\frac{3z}{4} = 141$$

$$z = 188$$

Substitute the value of z into each angle expression and evaluate.

$$m\angle B = \frac{z}{2} = 94^\circ$$

$$m\angle D = \left(\frac{z}{4} + 39\right) = 86^\circ$$

$$m\angle E = z - 59 = 129^\circ$$

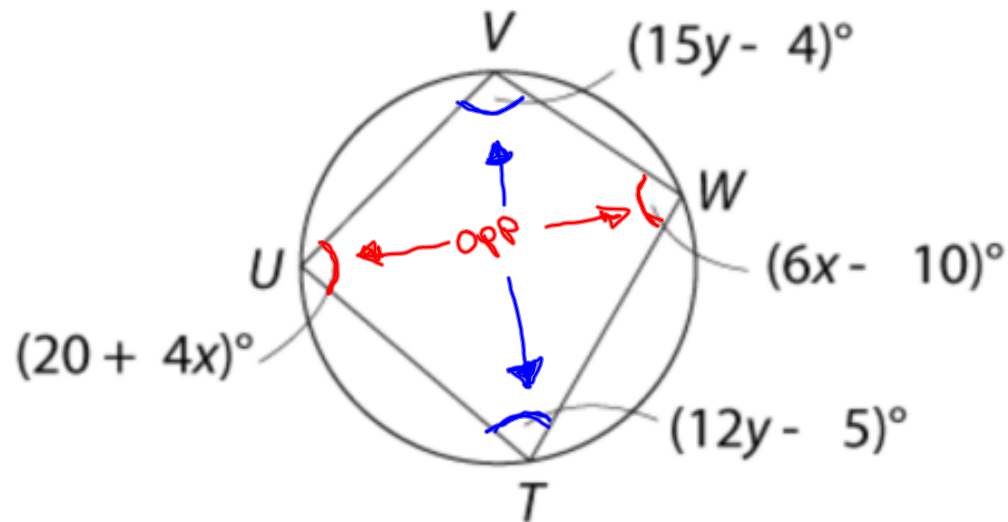
Inscribed Quadrilateral Theorem

$$m\angle C + m\angle E = 180^\circ$$

$$m\angle C + 129^\circ = 180^\circ$$

$$m\angle C = 51^\circ$$

7 Find each angle measure of the inscribed quadrilateral.



Find the value of y .

$$m\angle T + m\angle V = 180^\circ$$

$$(15y - 4) + (12y - 5) = 180$$

$$27y - 9 = 180$$

$$27y = 189$$

$$y = 7$$

Find the value of x .

$$m\angle U + m\angle W = 180^\circ$$

$$(20 + 4x) + (6x - 10) = 180$$

$$10x + 10 = 180$$

$$x = 17$$

Substitute the value of y into each angle expression and evaluate.

$$m\angle V = (15y - 4) = 15(7) - 4 = 101^\circ$$

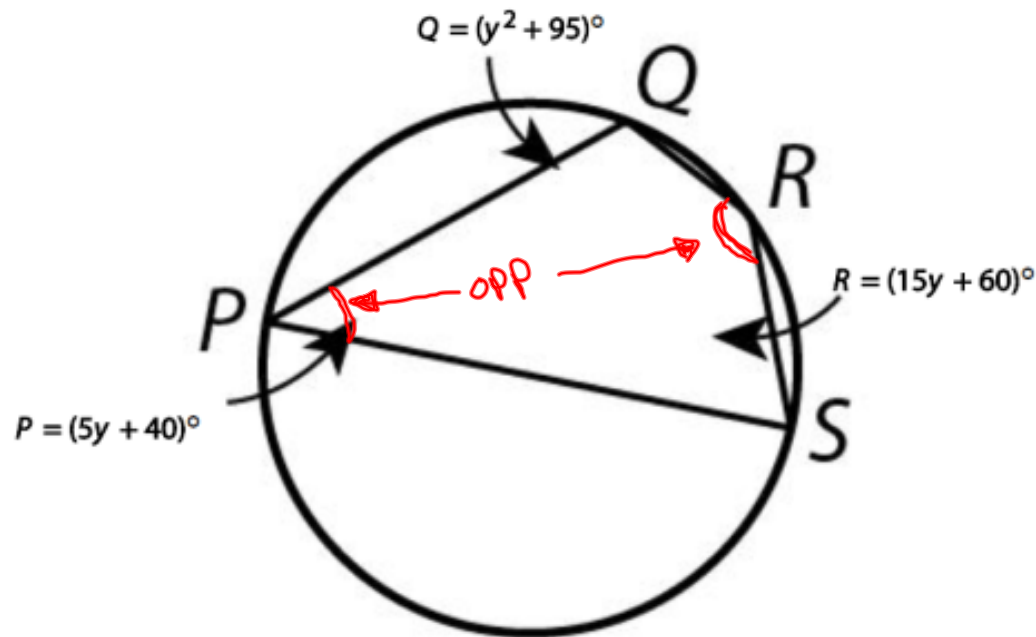
$$m\angle T = (12y - 5) = 12(7) - 5 = 79^\circ$$

Substitute the value of x into each angle expression and evaluate.

$$m\angle U = 20 + 4x = 20 + 4(17) = 88^\circ$$

$$m\angle W = 6x - 10 = 6(17) - 10 = 92^\circ$$

8 Find the measures of each angle in the inscribed quadrilateral.



Find the value of y .

$$m\angle P + m\angle R = 180^\circ$$

$$5y + 40 + 15y + 60 = 180$$

$$20y + 100 = 180$$

$$20y = 80$$

$$y = 4$$

Find the measure of each angle.

$$m\angle P = 5(4) + 40 = 60^\circ$$

$$m\angle R = 15(4) + 60 = 120^\circ$$

$$m\angle Q = (4)^2 + 95 = 111^\circ$$

Inscribed Quadrilateral Theorem

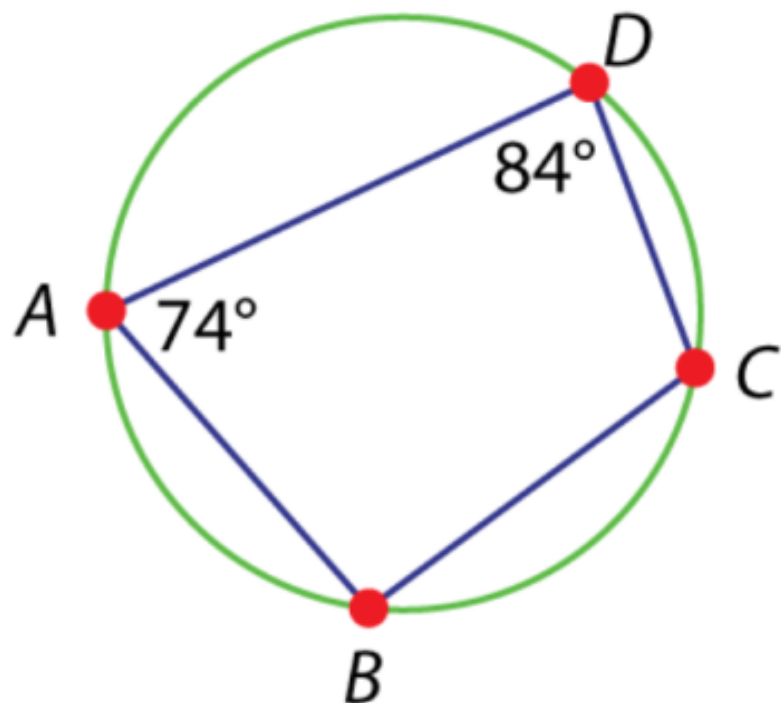
$$m\angle S + m\angle Q = 180^\circ$$

$$m\angle S + 111 = 180^\circ$$

$$m\angle S = 69^\circ$$

9

Find each measure using the appropriate theorems and postulates.



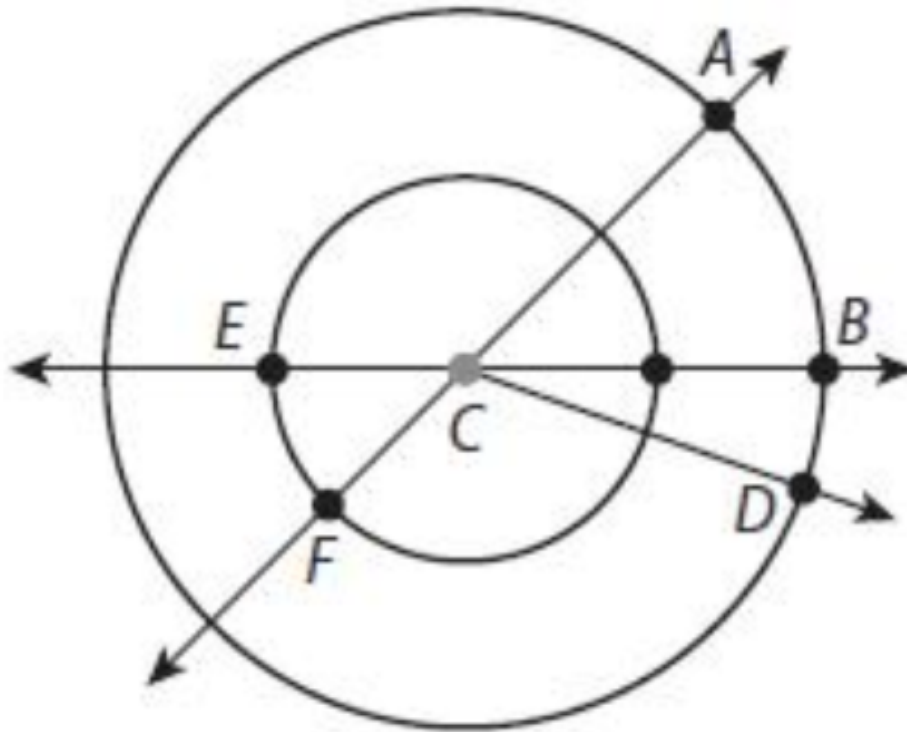
What is $m\angle B$?

Inscribed Quadrilateral Theorem,

$$m\angle B = 180 - 84^\circ = 96^\circ.$$


$m\angle B =$ $^\circ$ using .

10 If $m\angle BCD = 20^\circ$ and $m\widehat{EF} = 34^\circ$,
determine $m\widehat{ABD}$ using the appropriate theorems and postulates.



Vertical Angle Theorem

$$\begin{aligned} m\widehat{ABD} &= m\widehat{AB} + m\widehat{BD} \\ &= 34^\circ + 20^\circ \\ &= 54^\circ \end{aligned}$$



Never say,
"I can't"
Always say,
"I'll try"