

The background is a dark grey, chalkboard-like texture. It features various white sketches: a globe in the upper left, a microscope on the left side, a stack of books at the bottom left, a cross symbol at the bottom center, an open book with text at the bottom center, a percentage sign at the bottom right, and an exclamation point at the bottom right. A large white rectangular area is positioned in the upper right, containing the text 'Lesson 15.2'. Below this white area is a solid yellow horizontal bar.

Lesson 15.2

Module 15: Angles and Segments in Circles

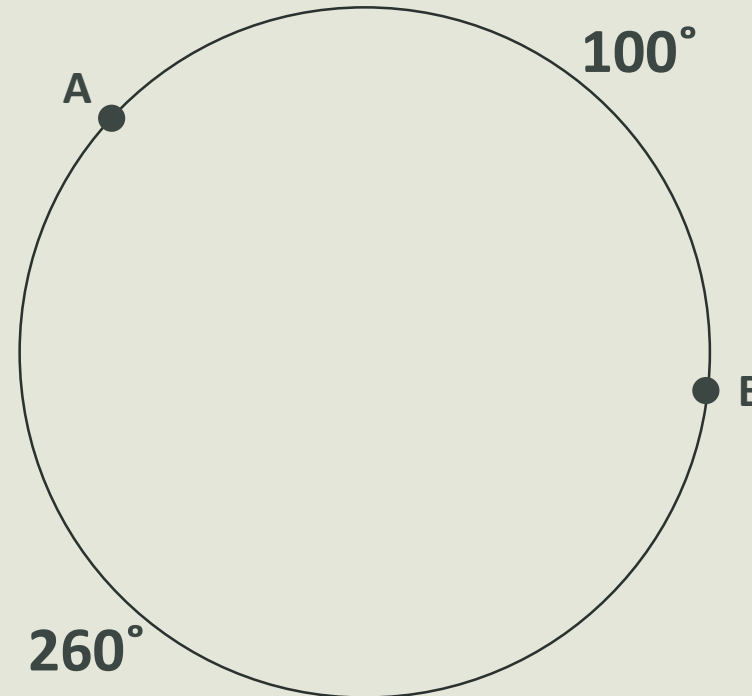
Quadrilaterals Inscribed in Circles

Quadrilaterals Inscribed in Circles – These have a special relationship. Begin by examining two points on a circle, A and B.

If the measure of the minor Arc AB is 100° what is the measure of the major Arc AB?

$$360^\circ - 100^\circ = 260^\circ$$

Notice that any two arcs created by the same two points on a circle must have measures that sum to 360° !



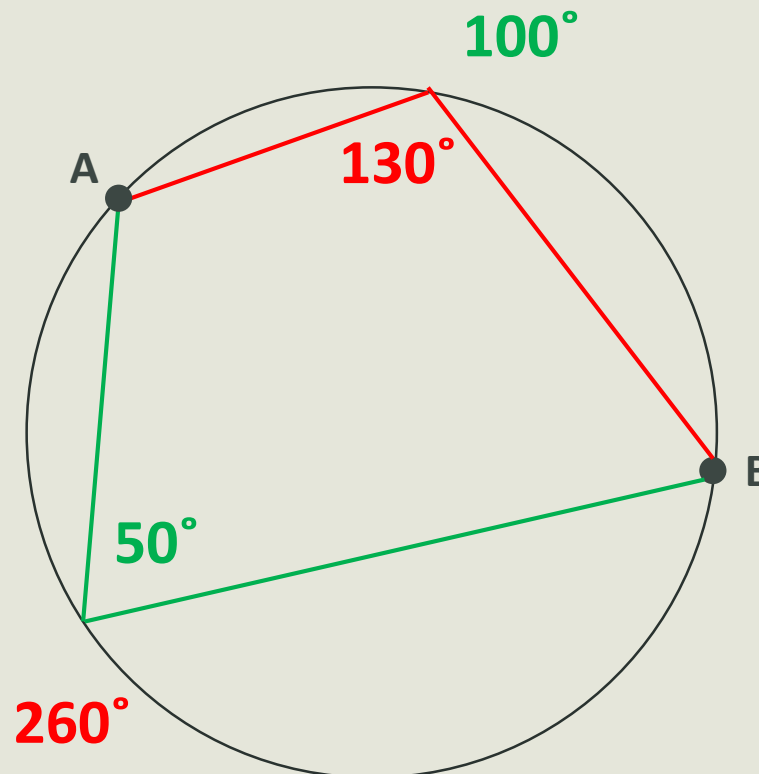
Module 15: Angles and Segments in Circles

Quadrilaterals Inscribed in Circles

What would the measure of each arc's inscribed angles have to be?

If the measure of the minor Arc AB is 100° any inscribed angle that intercepts that arc must be $\frac{1}{2}$ of the arc measure or 50°

If the measure of the major Arc AB is 260° any inscribed angle that intercepts that arc must be $\frac{1}{2}$ of the arc measure or 130°



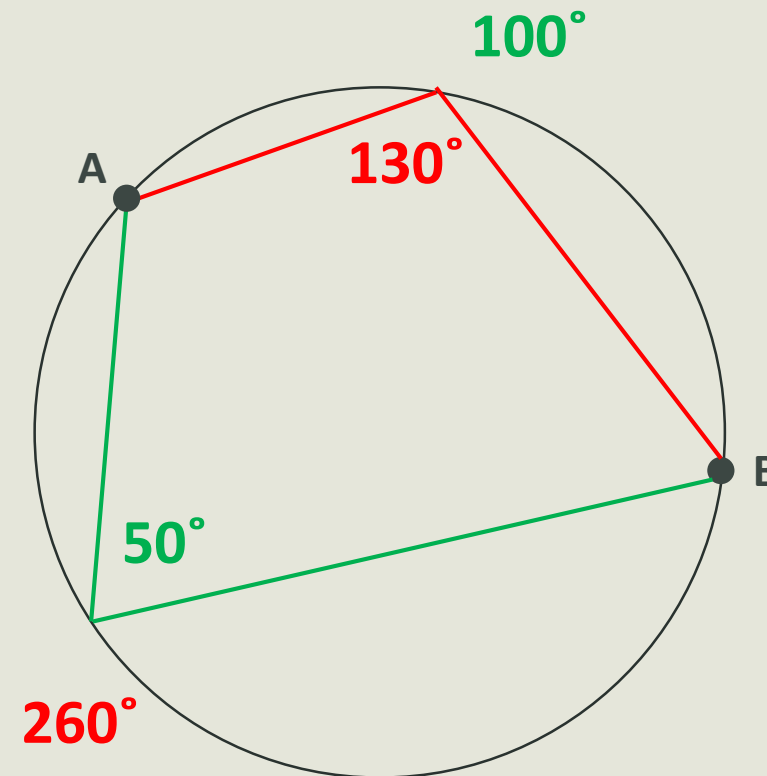
$130^\circ + 50^\circ = 180^\circ \rightarrow$ the angles are supplementary!

Module 15: Angles and Segments in Circles

Quadrilaterals Inscribed in Circles

Since the total angle measure of a quadrilateral must be 360° , the remaining two angles (at point A and point B) must also be supplementary!

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



Module 15: Angles and Segments in Circles

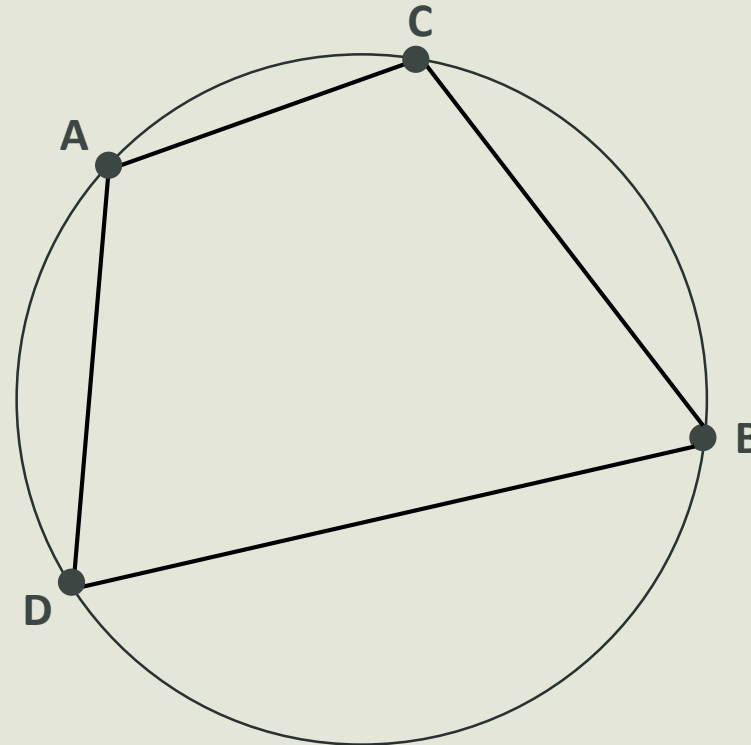
Quadrilaterals Inscribed in Circles

This can be stated generally as follows:

When a quadrilateral is inscribed in a circle, each pair of opposite angles **MUST** be supplementary.

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

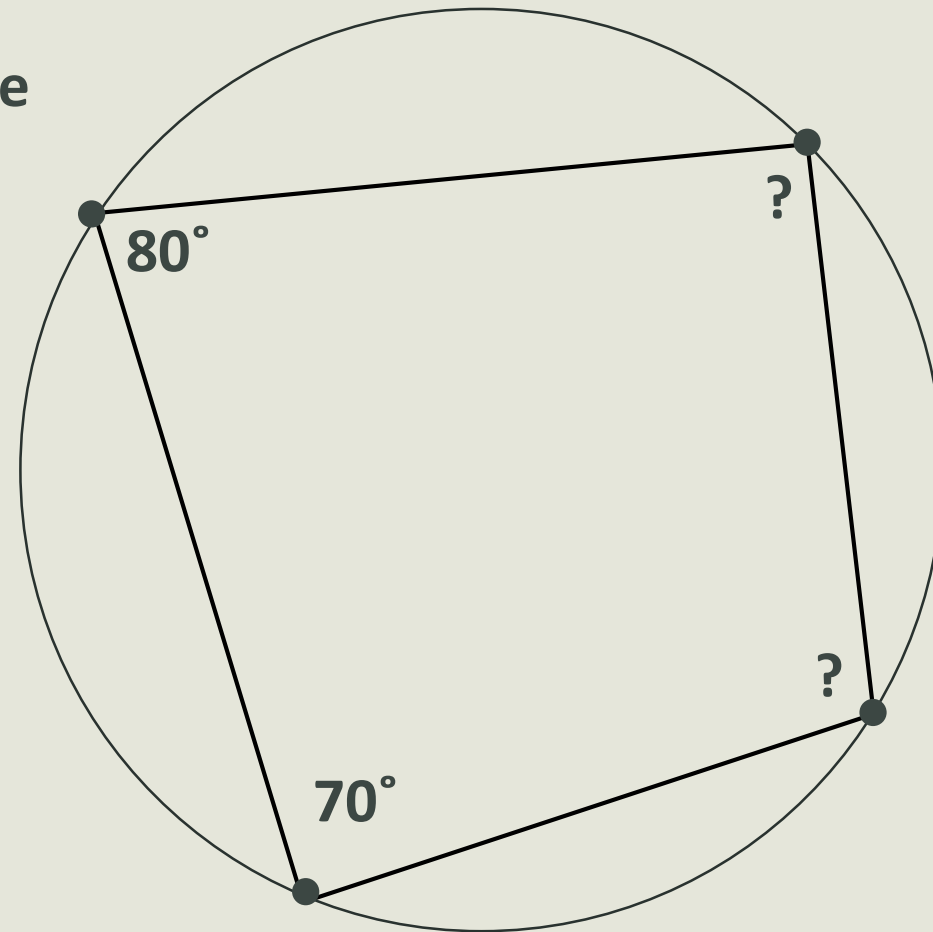
$$m\angle C + m\angle D = 180^\circ$$



Module 15: Angles and Segments in Circles

Checkpoint – putting it all together: Inscribed Angles and Quadrilaterals.

Find the measure of all of the ?'s on the diagram. Don't click ahead until you have them all!



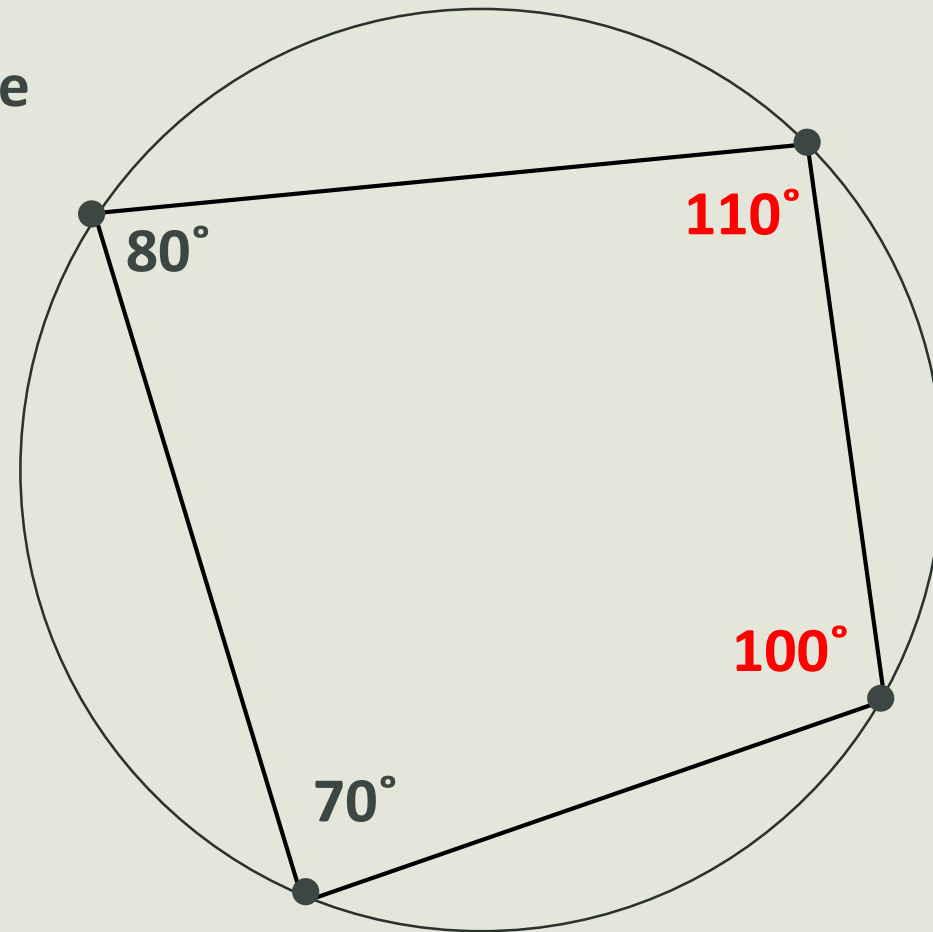
Module 15: Angles and Segments in Circles

Checkpoint – putting it all together: Inscribed Angles and Quadrilaterals.

Find the measure of all of the ?'s on the diagram. Don't click ahead until you have them all!

$$180^\circ - 80^\circ = 100^\circ$$

$$180^\circ - 70^\circ = 110^\circ$$



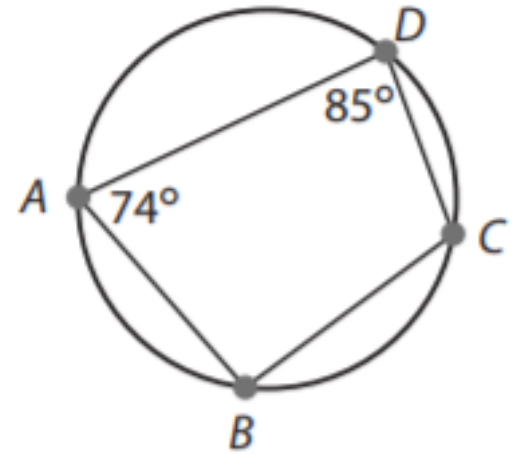
Module 15: Angles and Segments in Circles

Open your book to page 800 and do problems 5 and 6.

Use the figure for Exercises 5–6. Find each measure using the appropriate theorems and postulates.

5. $m\angle B$

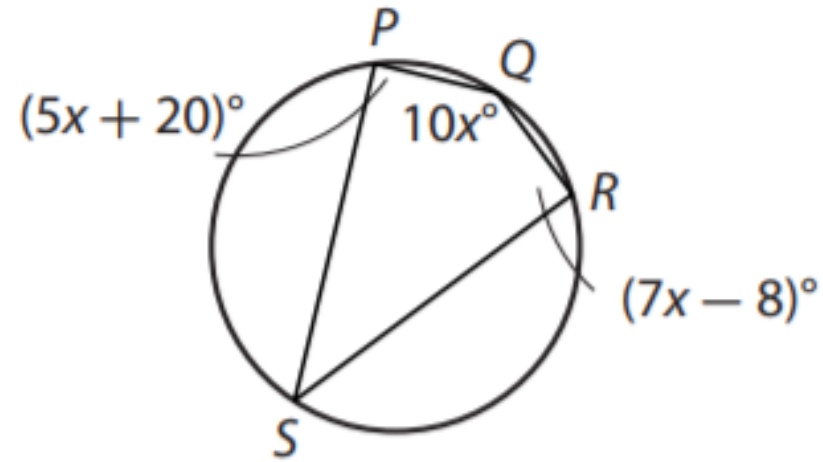
6. $m\widehat{DAB}$



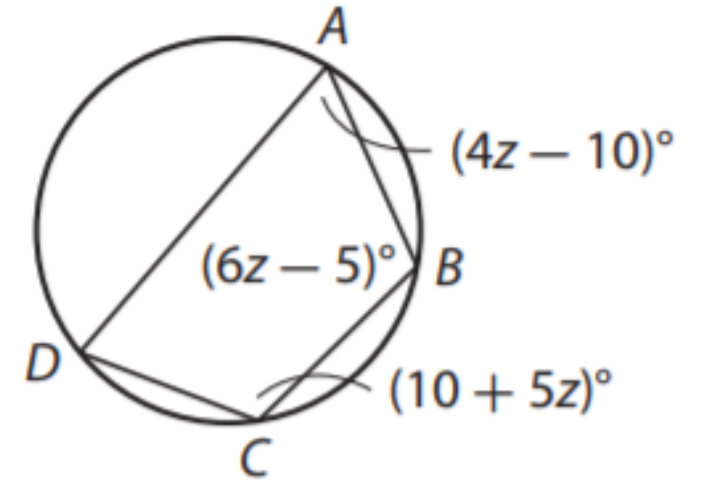
Module 15: Angles and Segments in Circles

Page 801, #'s 10-13

10.



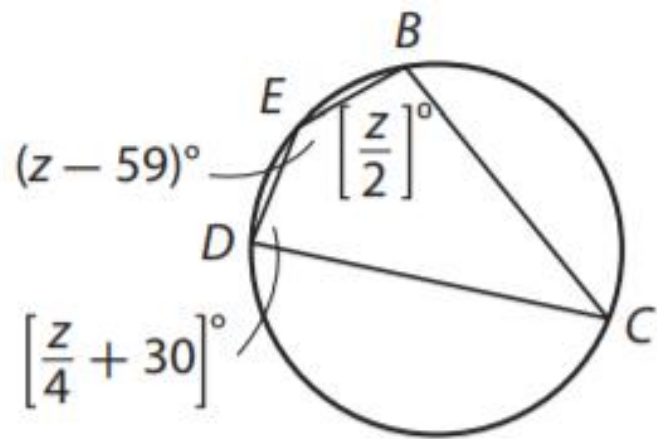
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Module 15: Angles and Segments in Circles

Page 801, #'s 10-13

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13.

