10.1 Exploring Angles in a Circle
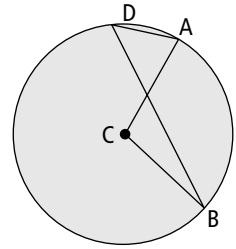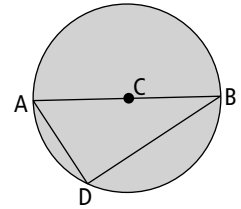
Check Your Understanding

Communicate the Ideas

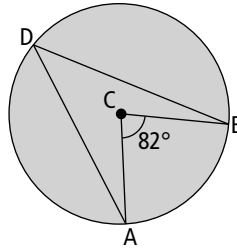1. ∠BDA measures half of ∠BCA. Explain why this is true.

    _____

    _____

2. Manny drew the diameter of a circle. Then, he drew an inscribed angle that had the same endpoints as the diameter. What is the measure of the inscribed angle? How do you know?

    _____

    _____

Practise

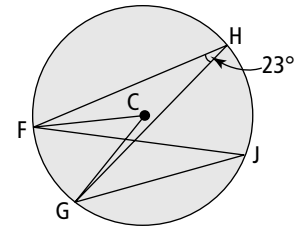3. What is the measure of ∠ADB?

    ∠ADB =

4. a) What is the measure of ∠FJG? Give 1 reason for your answer.

    ∠FJG is an _____ angle.

    ∠FJG = ∠FHG because they share the same _____.

    ∠FHG is _____°. So, ∠FJG is _____°.
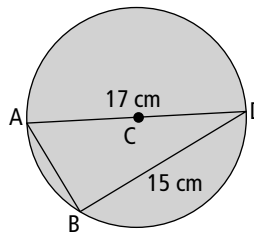
    b) What is the measure of ∠FCG? Justify your answer.

    ∠FCG is a _____ angle.

    ∠FCG =

    Central angle = 2 × inscribed angle

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5. Point C is the centre of the circle.
diameter AD = 17 cm
chord BD = 15 cm

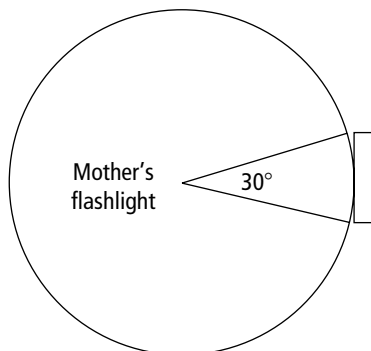**a)** What is the measure of ∠ABD?

∠ABD =

b) What is the length of chord AB?

$$AB^2 + BD^2 = AD^2$$

Use the Pythagorean relationship.

The length of AB is _____ cm.

6. All the lights are out, so Jacob and his mother are using flashlights to find the electrical panel.
Jacob's flashlight shines light through an angle of 15°.
His mother's flashlight shines light through an angle of 30°.
On the diagram, show where Jacob should stand so both flashlights shine on the electrical panel.
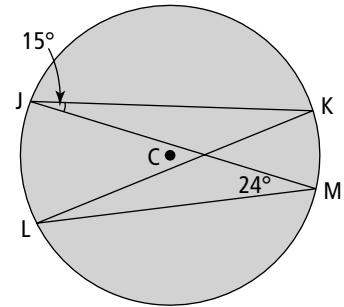
Use an inscribed angle.

Mother's flashlight   30°

Apply

7. Point C is the centre of the circle.
∠ABD = 38°

38° B

C

A

D
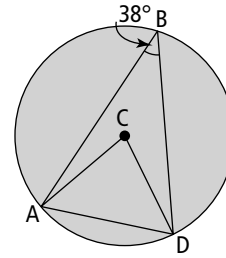
   a) What is the measure of ∠ACD? Justify your answer.

   b) What type of triangle is ΔACD? Circle ISOSCELES or EQUILATERAL.
   Give 1 reason for your answer.

   _____

8. Point C is the centre.
∠KJM = 15°
∠JML = 24°

15°

J

K

C

24°

M

L

   What is the measure of each of the following angles?

   a) ∠KLM

   ∠KLM shares the
   same arc as ∠KJM.

   b) ∠JKL

   c) ∠JCL

   Draw the angles in
   the diagram.

   d) ∠KCM

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9. In the diagram, ∠BAD = 34° and ∠ADE = 56°.

a) What is the measure of ∠ABE? Use arc AE.
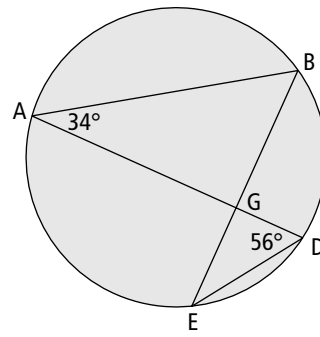
Sentence: _____

b) What is the measure of ∠AGB? The sum of the angles in a triangle = 180°

Sentence: _____

10. Amanda wants to use the Pythagorean relationship to find the length of AB. Will this work? Give 1 reason for your answer.

_____

_____

_____

_____