Lesson 4 Practice Problems

1. A quadrilateral $ABCD$ has the given angle measures. Select **all** measurements which could come from a cyclic quadrilateral.

   A. angle A is 90°, angle B is 90°, angle C is 90°, and angle D is 90°

   B. angle A is 80°, angle B is 80°, angle C is 100°, and angle D is 100°

   C. angle A is 70°, angle B is 110°, angle C is 70°, and angle D is 110°

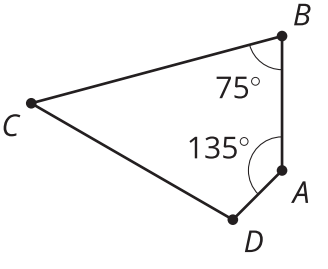
   D. angle A is 60°, angle B is 50°, angle C is 120°, and angle D is 130°

   E. angle A is 50°, angle B is 40°, angle C is 120°, and angle D is 150°

2. Quadrilateral $ABCD$ is cyclic with given angle measures.

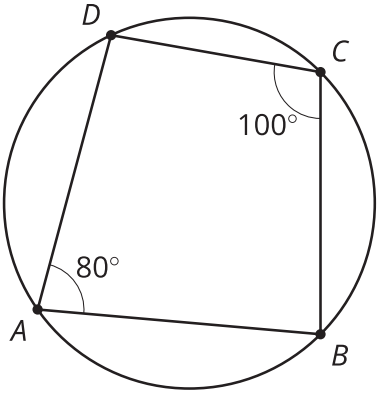
   a. What is the measure of angle C?

   b. What is the measure of angle D?

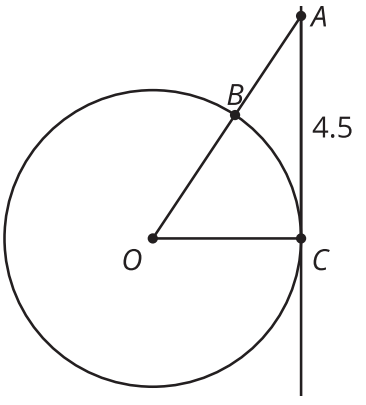


3. Lin is looking at cyclic quadrilateral $ABCD$. She says, "I'm not convinced that opposite angles of cyclic quadrilaterals always add up to 180 degrees. For example, in this diagram, suppose we moved point A to a different spot on the circle. Angle BCD would still measure 100 degrees, but now angle BAD would have a different measure, and they wouldn't add up to 180."

   Do you agree with Lin? Explain or show your reasoning.



4. Line AC is tangent to the circle centered at O with radius 3 units. The length of segment AC is 4.5 units. Find the length of segment AB.



A. $3 + \sqrt{29.25}$ units

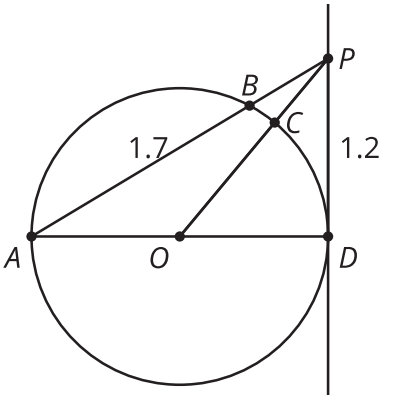
B. $\sqrt{29.25}$ units

C. $-3 + \sqrt{29.25}$ units

D. 26.25 units

(From Unit 7, Lesson 3.)

5. *Technology required.* Line PD is tangent to a circle of radius 1 inch centered at O. The length of segment PD is 1.2 inches. The length of segment AB is 1.7 inches. Han is trying to figure out if C or B is closer to P. He uses the Pythagorean Theorem to find the length of OP. Then he subtracts 1 from the length of OP to determine how far C is from point P.

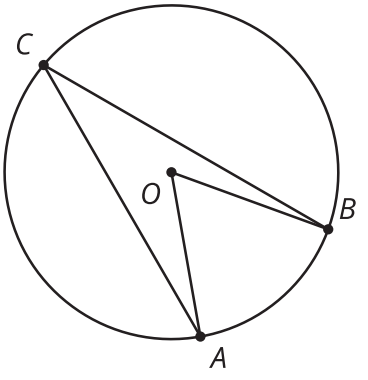


a. How far is B from point P?

b. Which point is closest to P? Explain your reasoning.

(From Unit 7, Lesson 3.)

6. In the diagram, the measure of angle ACB is 25 degrees. What is the measure of angle AOB?



(From Unit 7, Lesson 2.)

7. Which statement **must** be true?

   A. A diameter is a chord.

   B. A chord is a radius.

   C. A chord is a diameter.

   D. A central angle's vertex is on the circle.

(From Unit 7, Lesson 1.)

8. A circle and line are drawn. How many intersection points are possible? Select **all** possible answers.

   A. 0

   B. 1

   C. 2

   D. 3

   E. 4

(From Unit 6, Lesson 13.)