### Lesson 4 Practice Problems

1. A quadrilateral $ABCD$ has the given angle measures. Select **all** measurements which could come from a cyclic quadrilateral.
	1. angle $A$ is 90$​^{∘}$, angle $B$ is 90$​^{∘}$, angle $C$ is 90$​^{∘}$, and angle $D$ is 90$​^{∘}$
	2. angle $A$ is 80$​^{∘}$, angle $B$ is 80$​^{∘}$, angle $C$ is 100$​^{∘}$, and angle $D$ is 100$​^{∘}$
	3. angle $A$ is 70$​^{∘}$, angle $B$ is 110$​^{∘}$, angle $C$ is 70$​^{∘}$, and angle $D$ is 110$​^{∘}$
	4. angle $A$ is 60$​^{∘}$, angle $B$ is 50$​^{∘}$, angle $C$ is 120$​^{∘}$, and angle $D$ is 130$​^{∘}$
	5. 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.
	1. What is the measure of angle $C$?
	2. What is the measure of angle $D$?
* 
*
1. 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.
* 
1. 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 $AB$.
* 
	1. $3+\sqrt{29.25}$ units
	2. $\sqrt{29.25}$ units
	3. $-3+\sqrt{29.25}$ units
	4. 26.25 units
* (From Unit 7, Lesson 3.)
1. *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 $P$.
	1. How far is $B$ from point $P$?
	2. Which point is closest to $P$? Explain your reasoning.
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* (From Unit 7, Lesson 3.)
1. In the diagram, the measure of angle $ACB$ is 25 degrees. What is the measure of angle $AOB$?
* 
* (From Unit 7, Lesson 2.)
1. Which statement **must** be true?
	1. A diameter is a chord.
	2. A chord is a radius.
	3. A chord is a diameter.
	4. A central angle’s vertex is on the circle.
* (From Unit 7, Lesson 1.)
1. A circle and line are drawn. How many intersection points are possible? Select **all** possible answers.
	1. 0
	2. 1
	3. 2
	4. 3
	5. 4
* (From Unit 6, Lesson 13.)



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