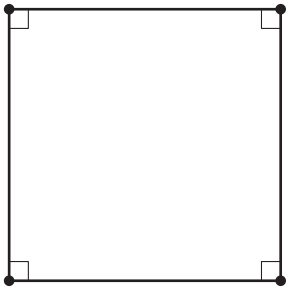
Unit 7 Lesson 4: Quadrilaterals in Circles

1 Connecting the Dots (Warm up)

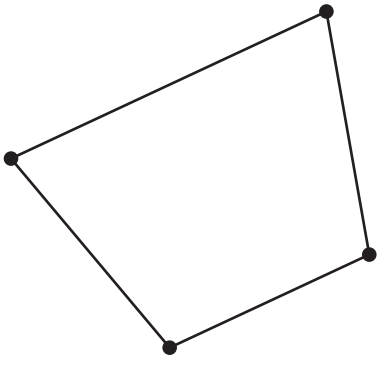
Student Task Statement

For each quadrilateral, use a compass to see if you can draw a circle that passes through all 4 of the quadrilateral's vertices.

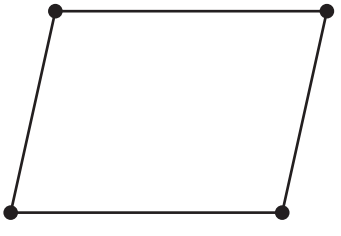
A



B



C

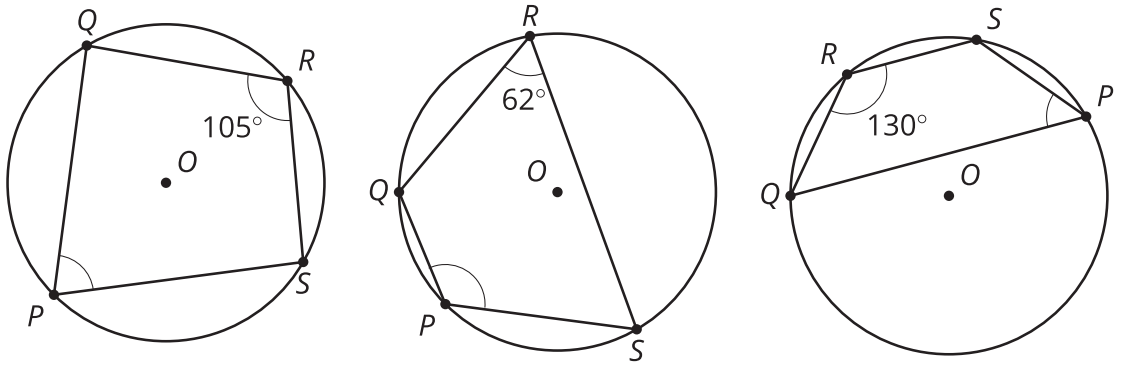


2 Inscribed Angles and Circumscribed Circles

Student Task Statement

1. The images show 3 quadrilaterals with **circumscribed** circles.

A **B** **C**



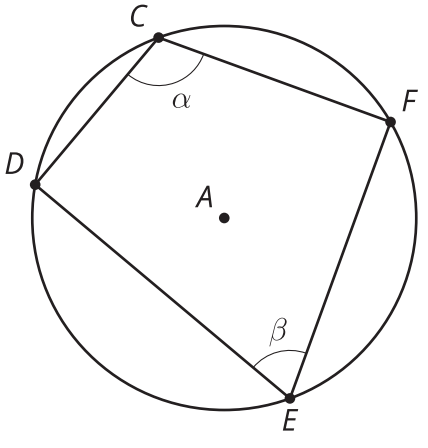
For each one, highlight the arc from S to Q passing through P. Then, find the measures of:

a. the arc you highlighted

b. the other arc from S to Q

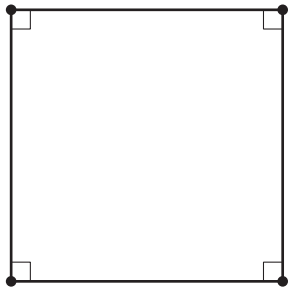
c. angle SPQ

2. Here is another quadrilateral with a circumscribed circle. What is the value of $\alpha + \beta$? Explain or show your reasoning.

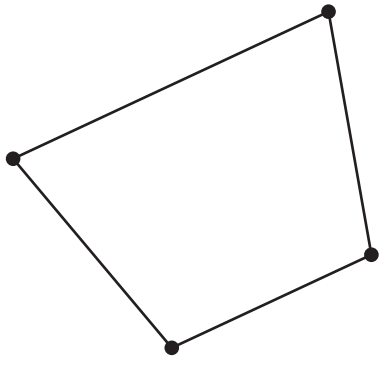


Activity Synthesis

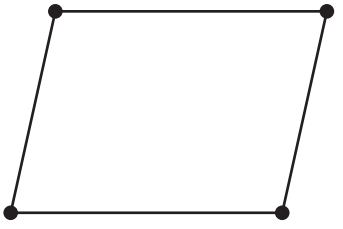
A



B



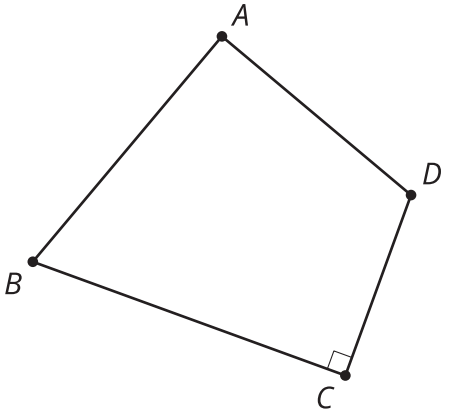
C



3 Construction Ahead

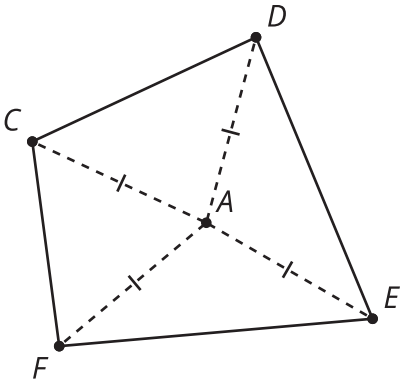
Student Task Statement

Quadrilateral $ABCD$ is a **cyclic quadrilateral**.



1. Draw diagonal BD. How will this diagonal relate to the circumscribed circle? Explain your reasoning.
2. Construct the center of the circumscribed circle for quadrilateral $ABCD$. Label this point O. Explain why your method worked.
3. Construct the circumscribed circle for quadrilateral $ABCD$.
4. Could we follow this procedure to construct a circumscribed circle for *any* cyclic quadrilaterals? Explain your reasoning.

Activity Synthesis



Images for Activity Synthesis