

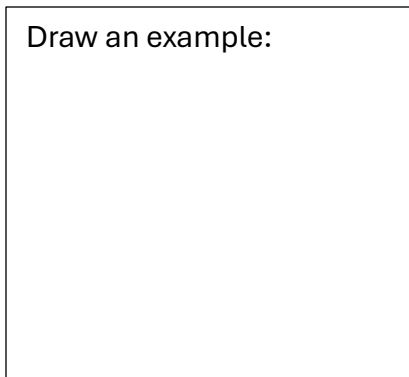
Cyclic Quadrilaterals: A Theorem of Angles



1. What is a cyclic quadrilateral?

Cyclic quadrilateral:

Draw an example:



2. Go to <https://www.geogebra.org/m/gk3rcfan> or the bottom of Heidi's applets page

a. Play with the construction to get a feel for a cyclic quadrilateral

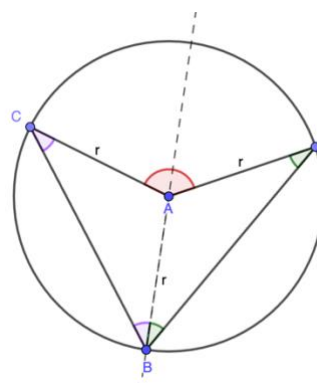


3. Make different cyclic quadrilaterals and record the opposite angle sum below

Cyc. Quad #	1 st pair	2 nd pair
1		
2		
3		
4		

What do you notice?

4. Recall a Theorem: Inscribed Angle Theorem



If angle CBD = (green + purple)

Then,
angle CAD = (red)

For further inquiries, look here:

<https://www.geogebra.org/m/vrrgk5x>



5. Click the "Show Proof Geometry" checkbox, and draw the resulting, correct figure:

6. A Justification

- How do angle C and angle DEB (A side) relate?
- How do angle A and angle DEB (C side) relate?
- Write an eq. for the sum of both sides of angle DEB
- Substitute in angle C and angle A
- Divide by 2 to get angle A + angle C

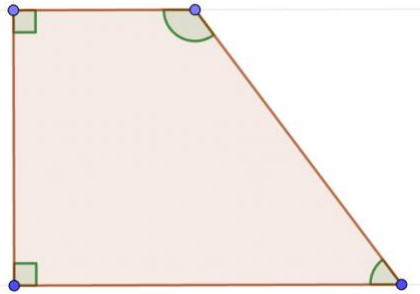
Any pair of opposite angles in a cyclic quadrilateral will _____ to _____ degrees



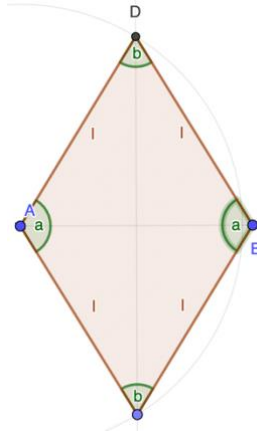
How do I know it's a cyclic quadrilateral? 🧙🏻‍♂️🔮

1. Talk with your table about why each of the following types of quadrilaterals are, sometimes, or never are cyclic – and develop a rule

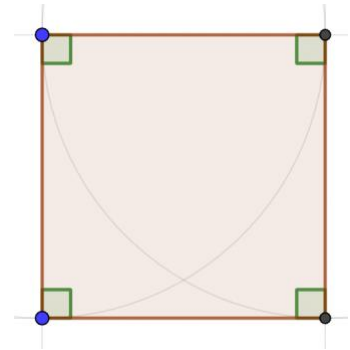
Never Cyclic
(non isosceles trapezoid)



Generally Non-cyclic
(rhombus)



Always Cyclic
(a square)



2. Assuming I have a cyclic quadrilateral, how might I find the center of the circle its inscribed in?

3. Find the center of each cyclic quadrilateral and draw its inscribing circle

