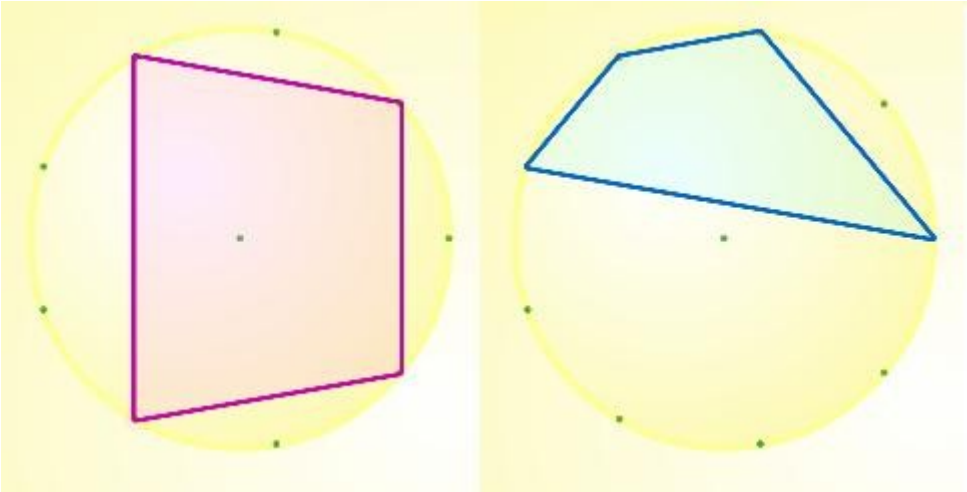
Cyclic Quadrilaterals Building Block A

Using a circle with **nine** evenly spaced points around the edge, draw triangles which use the centre of the circle as one of the vertices.
How many different triangles can you find?
Work out all the angles in these triangles.

On a nine-point circle, we can join four points to create cyclic quadrilaterals. Here are two examples:



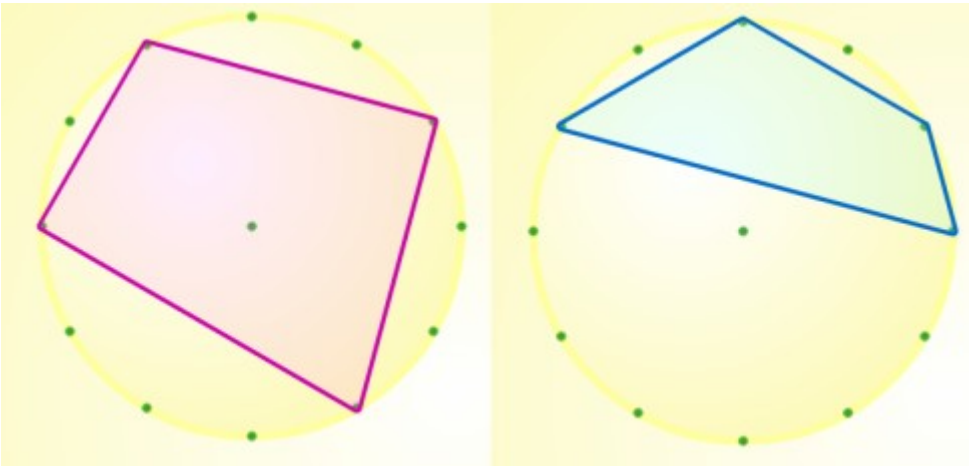
Create at least six different cyclic quadrilaterals on nine-point circles.
Split your quadrilaterals into triangles, and use your earlier results to work out the angles in your quadrilaterals.

What do you notice about the angles on opposite vertices of your quadrilaterals?

Cyclic Quadrilaterals Building Block B

Using a circle with **twelve** evenly spaced points around the edge, draw triangles which use the centre of the circle as one of the vertices. How many different triangles can you find?
Work out all the angles in these triangles.

On a twelve-point circle, we can join four points to create cyclic quadrilaterals. Here are two examples:



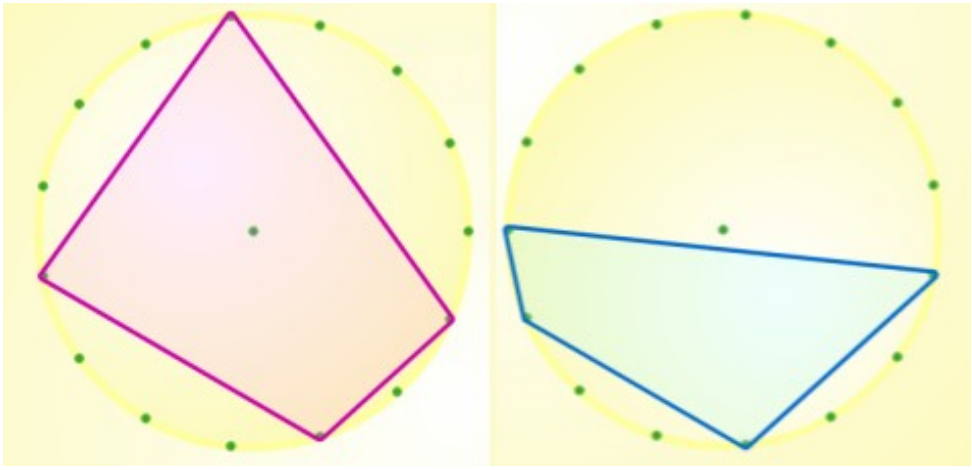
Create at least six different cyclic quadrilaterals on twelve-point circles. Split your quadrilaterals into triangles, and use your earlier results to work out the angles in your quadrilaterals.

What do you notice about the angles on opposite vertices of your quadrilaterals?

Cyclic Quadrilaterals Building Block C

Using a circle with **fifteen** evenly spaced points around the edge, draw triangles which use the centre of the circle as one of the vertices. How many different triangles can you find?
Work out all the angles in these triangles.

On a fifteen-point circle, we can join four points to create cyclic quadrilaterals. Here are two examples:



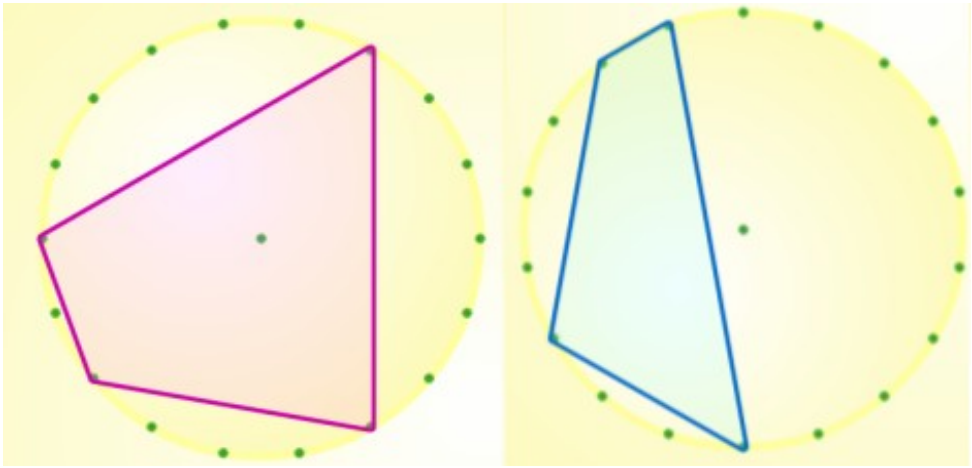
Create at least six different cyclic quadrilaterals on fifteen-point circles. Split your quadrilaterals into triangles, and use your earlier results to work out the angles in your quadrilaterals.

What do you notice about the angles on opposite vertices of your quadrilaterals?

Cyclic Quadrilaterals Building Block D

Using a circle with **eighteen** evenly spaced points around the edge, draw triangles which use the centre of the circle as one of the vertices. How many different triangles can you find?
Work out all the angles in these triangles.

On an eighteen-point circle, we can join four points to create cyclic quadrilaterals. Here are two examples:



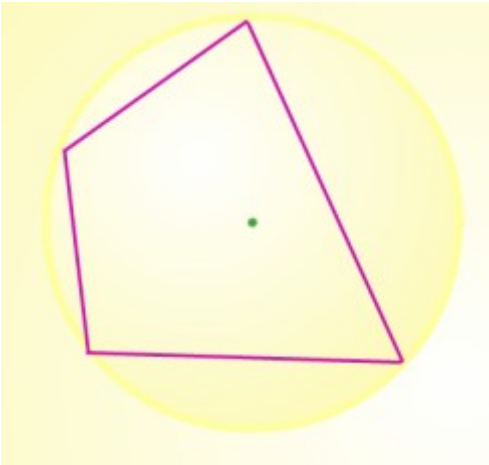
Create at least six different cyclic quadrilaterals on eighteen-point circles. Split your quadrilaterals into triangles, and use your earlier results to work out the angles in your quadrilaterals.

What do you notice about the angles on opposite vertices of your quadrilaterals?

Cyclic Quadrilaterals Final Challenge

What can you say about the angles on opposite vertices of any cyclic quadrilateral?

Use a diagram like the one below to create a convincing argument.



Does your argument still work if the centre of the circle is not within the quadrilateral?