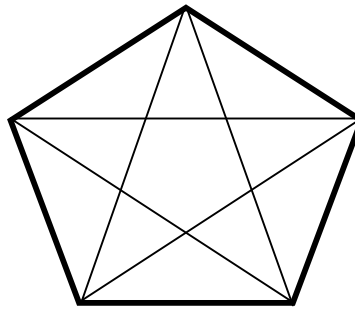
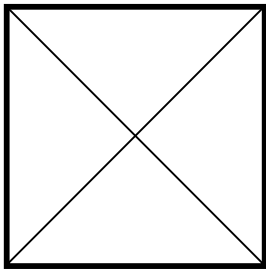


Investigation: Diagonals

Investigate whether there is a connection between the number of sides of a regular polygon and its diagonals.

Start with polygons with up to 10 sides.



You will need to draw lines from each vertex to the opposite vertices. Notice that as the polygon gets more complex, the number of lines coming from each vertex increases.

Why is this so?

Is there a pattern related to this growth?

Can you find a rule to explain this?

It will be helpful if you draw a chart to help you see the pattern

Name of shape	number of sides	Diagonals from each vertex	number of diagonals
Square	4	1	2
Pentagon	5	2	5

Do your results form a pattern?

- Can you predict from your results how many diagonals a 20 sided polygon would have?
- Now, what if you would like to find out how many diagonals a 100 sided polygon has?
- What if you had a polygon with 'n' sides. Could you write an equation to show your rule?