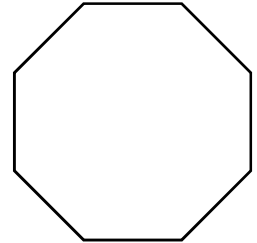
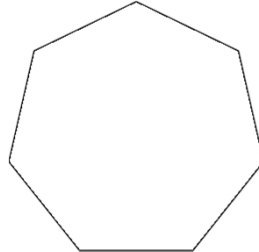
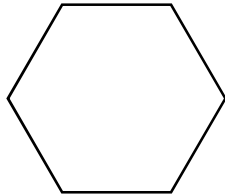
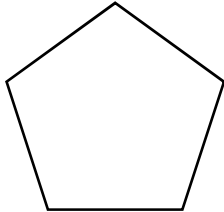


Investigation – Angles in polygons

Remember – the angles inside a triangle add up to 180° .

Task 1:

For each of the polygons below, pick one vertex (corner) and draw straight lines to each of the other vertices of the polygon. This should split each polygon up into triangles.



Task 2:

Complete the table below, using the fact that angles inside a triangle add up to 180° .

Name of polygon	Number of sides	Number of triangles inside polygon	Sum of interior angles
Triangle	3	1	180°
Quadrilateral			
Pentagon			
Hexagon			
Heptagon			
Octagon			

Task 3:

What is the difference between the interior angle sum of a triangle and a quadrilateral?

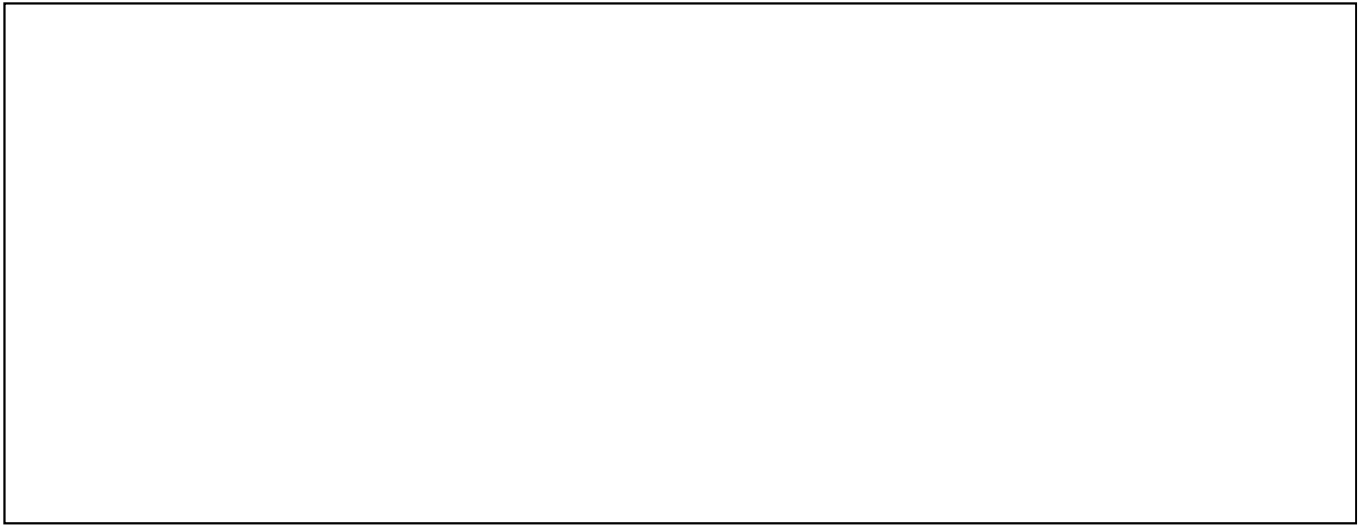
What is the difference between the interior angle sum of a hexagon and a heptagon?

Predict the interior angle sum of a nonagon (9 sides) and a decagon (10 sides).

The interior angle sum of a nonagon is _____

The interior angle sum of a decagon is _____

In the box below, draw a nonagon and a decagon. Split them up into triangles and check that your predictions were correct.



Task 4 - Extension:

If the polygon is **regular**, all the sides must be the same length and all the angles must be the same size.

Using this fact, can you work out the size of **one** of the angles in:

a) A regular pentagon? _____

b) A regular hexagon? _____

Task 5 - Extension:

Can you write a general rule relating the number of sides of a polygon to its interior angle sum?

