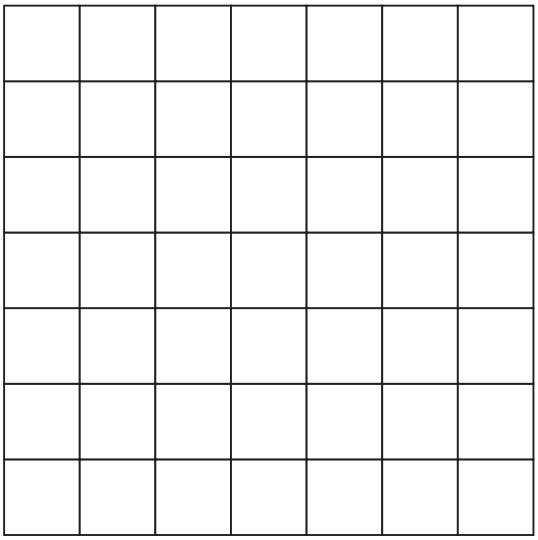
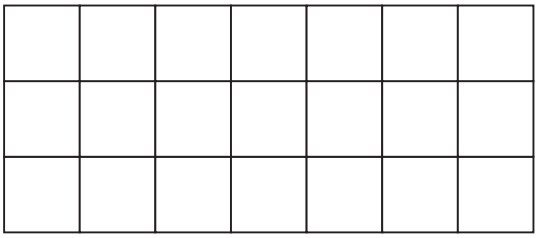
# 2 How Many Squares?

How many different squares can you find in this large square?

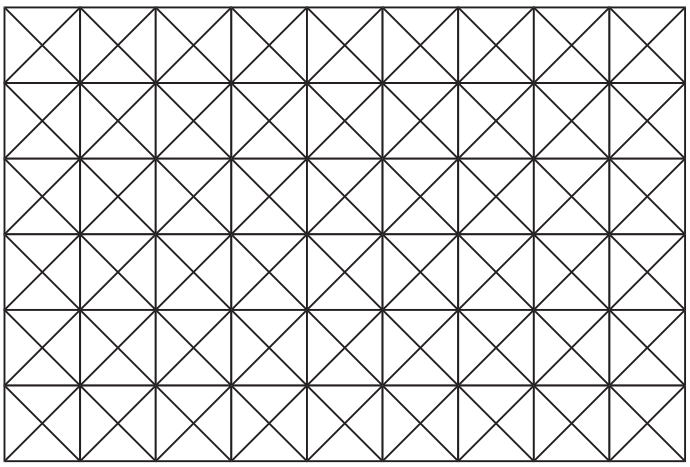


How many different squares can you find in this large rectangle?



Generalise for any size of rectangle or square.

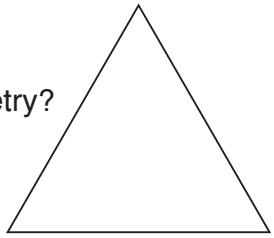
What about the number of different squares in this shape?



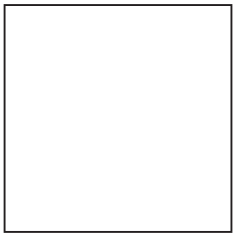
Generalise!

# 3 Regular Polygons

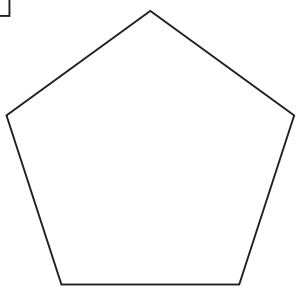
Lines of symmetry?



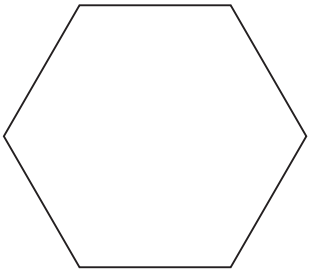
Rotational symmetry?



Interior angles?



Exterior angles?



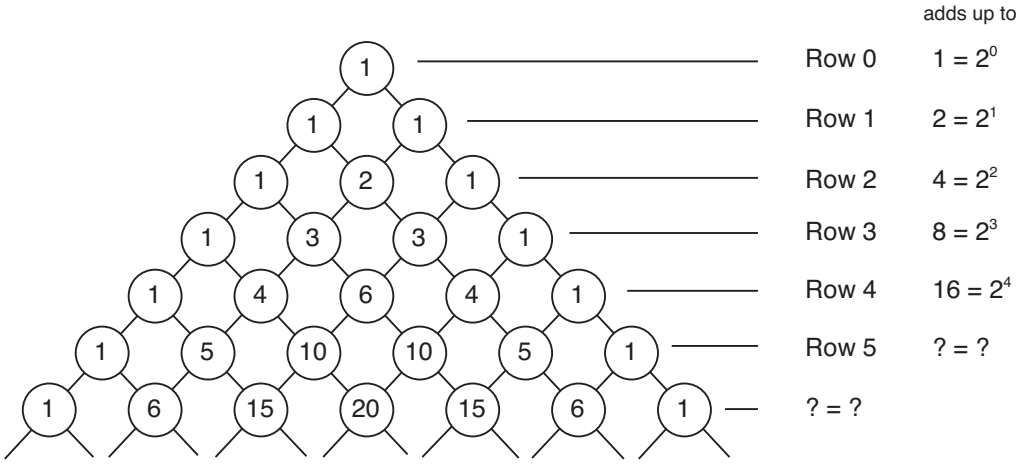
Areas?

Perimeters?

Will they tessellate?

Investigate the properties of regular polygons.

# 4 Pascal's Triangle




What numbers are in the next row?

How are the numbers formed?

What will row 8 add up to?

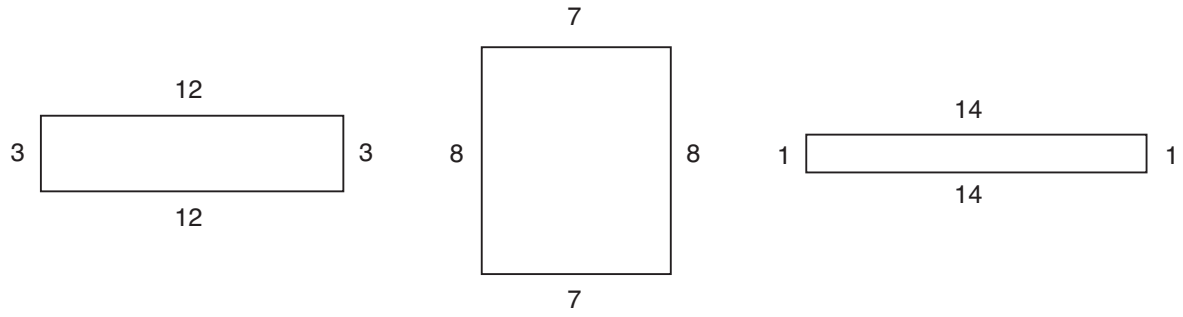
What patterns are there?

How would you find the answer to $(x + 1)^6$?

Investigate Pascal's Triangle.

# 5 Maximum Areas

Taking a piece of string (say 30 cm long) we can make the following rectangles.




The first rectangle has an area of 36 $cm^2$.

The second has an area of 56 $cm^2$.

The third an area of 14 $cm^2$.

Investigate to find the rectangle which will give you the largest area for this given length of string.

Investigate to find the **shape** which will give you the biggest area for a given length of string.