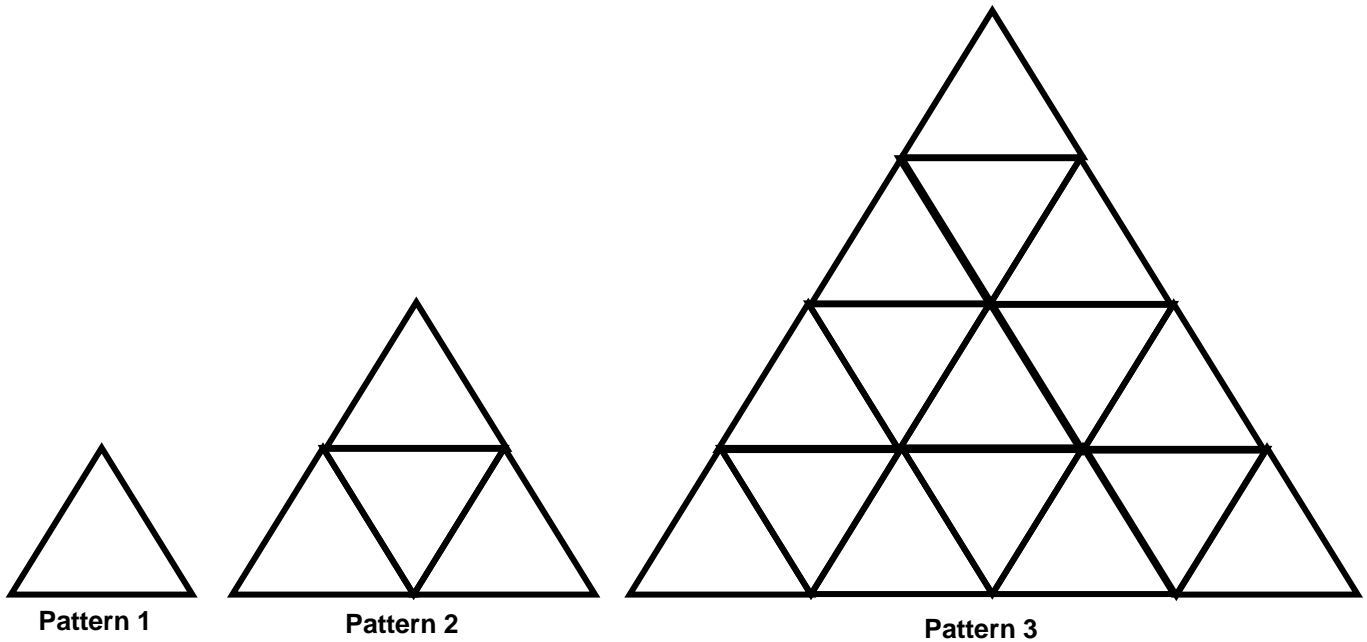


Tri-Triangles

Level E



Craig constructs the designs above from equal line segments. The design in Pattern 1 is made up of three-line segments. Pattern 2 is made up of nine-line segments. Pattern 3 is made up of thirty-line segments, and so on.

How many line segments are needed to make Pattern 8?

How many line segments are needed to make Pattern 16?

Determine a function for finding the number of line segments needed to make the pattern for any number n . Justify why your function works.

You have 6,294,528 equal line segments. Can you construct a design that belongs in this sequence using just those line segments? If so, what pattern number would that be? If not, how many more line segments might you need to construct a design that fits the sequence?

