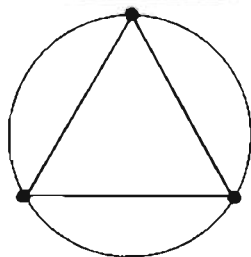


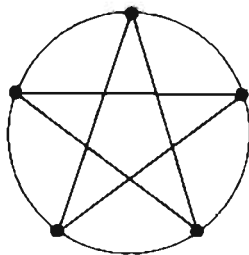
The next question is intended to take more than just a few minutes. It is well worth devoting sufficient time to it to experience both getting stuck and getting unstuck!

THREADED PINS

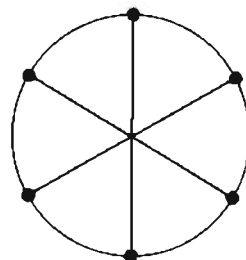
A number of pins are placed around a circle. A thread is tied to one pin, and then looped tightly around a second pin. The thread is then looped tightly round a third pin so that the clockwise gap between the first and second pin is the same as the clockwise gap between the second and third pin. For example:



3 pins, gap of 1



5 pins, gap of 2



6 pins, gap of 3

The process is continued, always preserving the same clockwise gap until the first pin is reached. If some pin has not yet been used, the process starts again. Five pins with a gap of two use just one thread, while six pins with a gap of three use three threads. How many pieces of thread will be needed in general?

TRY IT NOW

STUCK?

ENTRY

The best advice is to specialize.

Organize the results of specializing.

What could you **INTRODUCE** to be able to express what you **WANT** succinctly?

ATTACK

Try the subsidiary question: what pins can I reach from the starting pin?

Make a conjecture, however wild.

Now check your conjecture, looking for why it is right/wrong.

You may find yourself making and modifying several conjectures before you find one succinct statement that covers all cases.