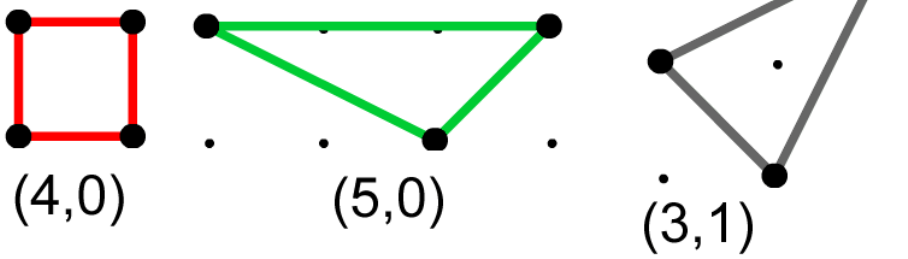
Pick's Theorem

enriching mathematics

When the dots on square dotty paper are joined by straight lines the resulting figures have dots on their perimeter (p) and often internal (i) ones as well.

As such each figure can be described accordingly (p, i).

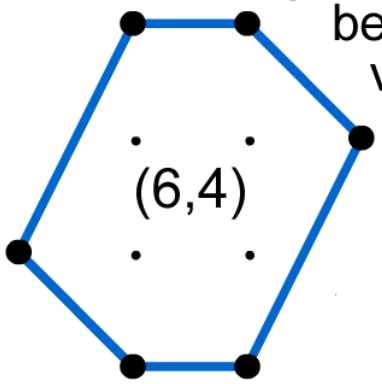


How many different figures can be described as (4, 0)?

Each figure you produce will always enclose an area (A) of the square dotty paper.

Draw more figures; tabulate the information about their perimeter points (p), interior points (i) and their areas (A).

Can you find a relationship between all these three variables (p, i and A)?



A Virtual Pinboard for this problem, the solution and thousands more problems can be found on the NRICH website:

www.nrich.maths.org