HOMEWORK #2

Let n be an integer greater than or equal to 2. The figures below are line drawings made up of n (where in the figures below, n is 2, then 3, then 4) points along a line and two points off the line. The points off the line are connected to the points on the line.

Assume that the sequence of figures continues and that there are n points in the nth figure in the sequence. How many regions will be cut out in the nth figure?
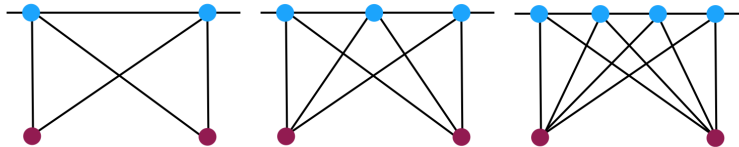
Make sure that you briefly explain how you arrived at your answer and follow the expectations outlined on the web page for your homework. Write your solution in LaTeX and upload your pdf file to Moodle.

A good solution to this problem will tell me how many regions are in this figure that I can use to easily calculate for large values of n and provides a clear and complete (and ideally short) explanation of why that formula is correct.