

## **Precise Division of Rectangular Paper into an Odd Number of Equal Parts without Tools**

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I have found a method to fold lines on any rectangular sheet of paper, dividing it into an odd-number of equal parts, both horizontally and vertically, without any tools. The dividing method starts from making a node, which is settled as an intersection of two straight lines. One of them is a constant line from the midpoint of the left side to the right upper corner of the sheet. This line is common and suitable for trisection, 5-, 7-, 9-, 11-, 13-, 15-, 17- section and so on. Another line starts from the midpoint of the upper side which is common and suitable for every odd-number and ends at a designated point on the bottom side according to the particular odd number. For example, when the end of the latter line meets the left bottom corner, we can get a trisection node as an intersection point with the former line, while on the right bottom corner, we can get a 5-section node. Another example: when the line ends at the one-fourth point from the left corner of the bottom, we can get a 7-section node, while at the same distance from the left corner, we can get a 9-section node.

If the coordinates are set on the rectangular sheet, using the bottom left corner as the origin, the above-mentioned two straight lines can be written as two expressions, and the solution of the simultaneous equations clearly indicates that those nodes are mathematically precise.

This method of division is applicable to any kind of rectangular paper, including squares. Starting from a trisection, I have already made a 31-section division, horizontally and vertically on a sheet of A4 paper. Theoretically, it is possible to divide A4 paper into over 31 sections, however I have abandoned the trial, because paper folding along such narrow parallel lines is exceedingly difficult with my empty hands.