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Crack Four Color Conjecture with Remainder-quotient Method

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Abstract Drawing language: Coloring a map, only four colors are needed to make the colors of the two neighboring countries not overlap no matter how many countries are there on the map. Mathematical language: A three-dimensional figure can be formed by connecting the 4-point trajectories not on the same plane in space. (At least 4 points are needed) (4-face body) Give the 4 faces different colors respectively, only 4 colors are needed and the edges of the same color do not coincide. Open these 4 planes and on the same plane, no matter how they are spliced, the edges of the same color edge will not coincide either.

Key Words Four Color Conjecture with Remainder-quotient Method

MSC 2010 30D01, 30D30

A three-dimensional figure can be formed by connecting the 4-point trajectories not on the same plane in space. (At least 4 points are needed) (4-face body) Give the 4 faces different colors respectively, only 4 colors are needed and the edges of the same color do not coincide. Open these 4 planes and on the same plane, no matter how they are spliced, the edges of the same color edge will not coincide either.

The possible remainder of 1 is 0, its quotient sum is 0, and the sum of corresponding number is also 0, so only 1 point can form a point rather than a graphic, but 0 occupies a certain number of digits. Add a point or points at this point, and the back point covers the front. At this point, add a point or more, and then the front point will be covered.

The possible remainder of 2 is 1, its quotient sum is and there is no complete sum of corresponding number (complete sum of corresponding number is 9), so only two points can form a straight line rather than a closed figure. Only connecting the trajectories of the 2 points not at the same point can a line be formed. On the same line, add a point or more, and these points will be covered. The possible remainder of 3 is 1 and 2, its quotient sum is and a complete set of corresponding numbers has already been formed, so only 3 points can form a plane closed graph triangle. Only connecting the trajectories of the 3 points not on the same line can a planar graph be formed. On the same plane, add a point or more, and these points will be covered. The possible remainder of 4 is 1, 2 and 3, its quotient sum is and a complete set

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of corresponding numbers has already been formed, so only 4 points can form a three-dimensional closed graph triangle. At least 4 points are needed to form 1 three-dimensional graphic. On the same plane, add a point or more, and these points will be covered. Add one point or multiple points on the same stereo, and these points will be covered. Connecting the trajectories of the 4 points not on the same plane can a four-face body be formed. Give each of the 4 faces 4 different colors, just 4 colors (because there are only 4 faces), and the edges of the same color will not overlap. At least 4 different colors are needed. Open the stereo surface to the same plane, it becomes a regional graphic. Each of these regions represents a region, so this is a map. The same color sides will not coincide and this is 4 color conjecture.

Color a map. If you use 4 colors, the boundaries between the two regions will not overlap: (the graph below) only connecting the trajectories of the 4 points not on the same plane can a three-dimensional graphic be formed in space. (At least 4 points are needed) (4-faced body). The quotient sum of 4 is . The formula of 4 is

Give the 4-face body coloring and only 4 colors are needed. (Since it is three-dimensional, at most you can see 1/2 of the entire surface, so you can only see 2 faces)

4-surface expansion diagram: the 4 surfaces of 4-dimensional graphics are unfolded on the same plane, and the edges of the same color will not coincide with each other.

No matter how they are placed, the edges of the same color will not coincide with each other. These 4 regions are in a graph, and this is the map. Only with 4 different colors to color a map can you make the area boundary colors not overlap, for which at least four colors are needed.

With 1 color, all of the border colors coincide.

With 2 colors, the boundary colors overlap.

With 3 colors, the boundary colors overlap.

With 4 colors, the boundary colors do not overlap.

Only with 4 different colors to color a map can the two-zone boundaries not overlap: (the map below)

Spatially connecting the trajectories of n points not on the same plane can form a three-dimensional graphic, and this stereo graphic (n) is a sphere:

This is the Earth. At least 4 colors are needed to color the Earth and the regional boundary colors do not coincide.

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