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Trisecting a tri-angle.

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From the text: In Triangle Land everyone lives on a triangular plot of land. Every couple who has children has one pair of twins. When the children reach the age of 18 the parents divide the land into three plots of equal area, with the parents having one plot and the children each having one of the other plots. How should they set about dividing their plot into three equal parts? This problem gives students the opportunity to learn and use some geometry. We suggest some solutions which students may propose themselves or have suggested to them. They could use Geogebra to experiment with finding solutions that give equal area, as well as discover or try the suggested solutions here, verifying that the areas are equal and then attempting to prove why the areas must be equal. One can also pose this problem in terms of dividing a triangular piece of cake into three equal pieces. Variations of this problem with different numbers of pieces of land/cake are possible, which we leave readers to think about.

Classification: G40 U70

Keywords: elementary geometry; plane geometry; triangles; trisection of area; centroid; geometry software; discovery learning