

Quadrilaterals in which an angle is the mean of the other angles

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ABSTRACT. In this article we determine all the quadrilaterals in which an angle is the arithmetic or geometric mean of the other angles. The angles are measured in degrees. We also study the particular case where the measures of the angles are integers numbers. In the sequel, is studied the same problems for all types of means, in the special case of inscribable quadrilaterals.

In [2] L. Trouché determine the triangles in which an angle is the geometric mean of the other angles. Also, he proves that from all the triangles only equilateral triangles have measures of the angles, integer numbers.

In [1] we generalize this problem for the harmonic and quadratic mean. We proved that the set of $(x, y) \in (0^\circ, 180^\circ) \times (0^\circ, 180^\circ)$, that is $x + y + m(x, y) = 180^\circ$, where $m(x, y)$ is this means, are an arc of two hyperboles, and also only equilateral triangles have the properties that the measures of their angles are integers numbers.

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