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A Triangle with Sides Lengths of a Rational Power of the Plastic Constant,

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Abstract

Using the golden ratio ϕ , a triangle whose side length ratio can be expressed as $1 : \sqrt{\phi} : \phi$ represents a right triangle since the golden ratio has the property of $\phi^2 = \phi + 1$ and therefore satisfies $1^2 + (\sqrt{\phi})^2 = \phi^2$. This triangle is called the Kepler triangle.

As in the case of the Kepler triangle, in this study we determine triangles where the length of the three sides is expressed using only the constant obtained from the linear recurrence sequence (golden ratio, plastic constant, tribonacci constant and supergolden ratio).