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The Sepak Takraw ball puzzle.

Int. J. Pure Appl. Math. 79, No. 2, 281-292 (2012).

Motivated by the observation that Thaiandian ball game Sepak Takraw uses a ball in the shape of a truncated icosahedron, the author of the paper under review sets out to describe a method for constructing such a solid from simple packing tape, and to record certain observations regarding this solid and other solids. He observes that the truncated icosahedron is also the shape of an ordinary soccer ball and the shape of the fullerene C_{60} molecule made famous by the award of the Nobel prize in chemistry in 1996 to H. Kroto, R. Curl, and R. Smalley. He then moves on to prove Euler's polyhedron formula and that there are only five regular polyhedra, and then he calculates the number of pentagonal and hexagonal faces of this solid and certain relations between its radius and the side lengths of its faces. Most of the material in the paper is contained in the first course of elementary Euclidean geometry offered by universities such as in the courses of the reviewer, and thus the paper can be used as supplementary reading in such a course.

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Classification: A20 G40 M90 M60

Keywords: Euler's polyhedron formula; regular polyhedron; semi-regular polyhedron; truncated icosahedron; soccer ball; fullerene C_{60} molecule; Sepak Takraw

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