Bassem Ghalayini and Joseph Malkoun Golden Proportions in Higher Dimensions, Fibonacci Quart. 49 (2011), no. 3, 267–272.

Abstract

The golden ratio $\phi=(1+\sqrt{5})/2$ appears in numerous contexts in the literature. A study is made to generalize ϕ to dimension n. Novel results are obtained by generalizing three different characterizations of ϕ to higher dimension.