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An Infinite System of Hypercomplex Numbers.

A system of hypercomplex numbers is defined for each dimension that is a power of 2. In each of these dimensions, the numbers are associative and commutative but their advantages lie in the ease of multiplication, how closely their properties mirror the properties of the complex numbers in 2 dimensions as well as the location and properties of the zero divisors. In addition, the basis forms a group under multiplication providing a multiplication table that relates all of the roots of -1 and real and non-real roots of 1. Some classic geometric and analytic properties of the ring are verified. (Received August 09, 2010)