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How to construct regular 7-sided polygons - and much else besides. Pt. 1. The basic construction.

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In this article (and its sequel) the authors show you that, slightly redefining the problem formulated by the Greeks, you will be able, in principle, to construct, for any given value of N , a polygon that will be an arbitrarily good approximation to a regular N -gon. Furthermore, all this can be done by a systematic and explicit paper-folding procedure that is described in detail, which depends only on the precise value of N . The authors argue that in practice the approximations we obtain by folding paper are quite as accurate as the real world constructions obtained with a straight edge and compass – for the latter are only perfect in the mind. In both cases the real world result is a function of human skill, but the authors' procedure, unlike the Euclidean procedure, is very forgiving, in that it tends to reduce the effects of human error – and, for most people, it is far easier to bisect an angle by folding paper than even when geometric figures are obtained from the best of modern-day computers their accuracy depends on the precision of the computer calculation and the resolution of the printer. (from the introduction)

Classification: G40