Geometry Through Art

Norman Shapiro

Inscribed Circles and Squares

Leonardo Da Vinci saw the ideal proportions for man as being measured in relation to two geometric shapes: the circle and the square.
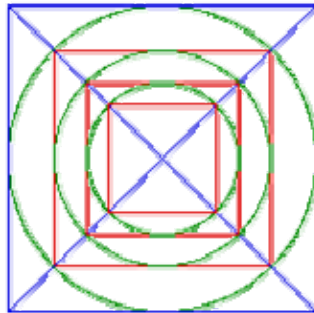
The square inscribed in a circle and the circle inscribed in a square are unique and beautiful relationships that have proved useful to artists, architects, engineers, and designers of decorative and useful objects throughout the ages. We see the circle/square motif in almost every culture and civilization.

Why this is so can best be understood by using a compass and a straight edge.
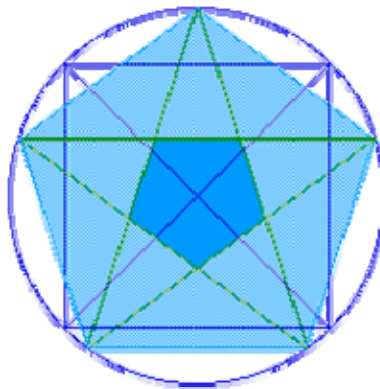
The square is the first of a series of even-numbered regular polygons that can be inscribed in a circle. Its diagonals intersect at the center of the circle. The diagonals of odd-numbered polygons such as the pentagon do not.

The diagonals of even-numbered polygons are also the diameters of the inscribing circles, but of all the even-numbered polygons, the square is most unlike the circle. The more sides are added, the more an even-sided polygon resembles a circle.

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