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Biangular coordinates redux: discovering a new kind of geometry.

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Summary: Biangular coordinates specify a point on the plane by two angles giving the intersection of two rays emanating from two fixed poles. This is a dual of Cartesian coordinates wherein a point on the plane is described by two distances. Biangular coordinates, first written about in 1803 in France, were subsequently studied in Britain at the end of the 19th century. Contemporary students will enjoy plotting biangular relations and discovering patterns in families of relations. The mathematical shapes which are given by biangular relations include standard shapes like lines, circles, hyperbolae and also unusual curves like. Biangular coordinates elegantly describe some curves whose representations are clumsy in other systems.

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