Michael Huber*, huber@muhlenberg.edu. *A Mathematical Perspective of Rome’s Twin Churches. Preliminary report.

The Piazza del Popolo is one of the larger and more scenic locations in Rome, and it is situated only a few hundred meters northwest of the famous Spanish Steps. On the south side of this elliptically-shaped piazza lie two churches, Santa Maria di Montesanto and Santa Maria dei Miracoli, known as the Twin Churches. The churches were designed to be identical in the 17th century, as seen from the northern side of the square. This identical appearance is due to perspective, not to symmetry. The churches in fact have totally different ground plans and dome structures, yet they appear identical, thanks to Bernini. This paper describes an approach for instructors of introductory symmetry and shape courses which applies to actual buildings, in calculating the perspectives and volumes of structures which have elliptical or circular shapes. Practical applications of online 3-dimensional rendering is employed. (Received August 21, 2013)