Math Problem of the Fortnight

Lunar Orbit

Create a (parametric) function with independent variable $\theta$, then angle through its orbit the earth has travelled around the sun. The function should trace out the orbit of the moon around the sun. Assume the orbits of both bodies are circular and lie in the same plane. Also assume, the distance from the sun to the earth is 1 AU and from the earth to the moon is $1/215$ AU. Assume the period of the moon around the earth is $1/13$th of that of the period of the earth around the sun. (A possibly useful initial position for when $\theta = 0$ is when all bodies are on the positive x-axis which would be in eclipse position.)

The Problem of the Week is open to all undergraduate students, regardless of major. Submit your written solution, along with your name and e-mail address, to the Math Department office (Founders Hall Room 2006) by 2:00 p.m. on Friday August 28, 2017. There is a prize of your choice of a $10 gift certificate to either Komal or Barista’s for the best solution.

http://www.unk.edu/academics/math/problem-of-the-fortnight.php