

1135-F1-1864 **Susan Schmoyer*** (schmoyes@tcnj.edu), Ewing Township, NJ. *A Mathematician Plays with a Spirograph*. Preliminary report.

If you've ever played with a Spirograph toy, you know how hard it is to (1) draw a perfect curve without the pen or gear slipping, and (2) draw curves as amazing as the samples that come with the toy. Using a computer algebra package like CoCalc (formerly SAGE), parametric equations, and a little linear algebra, ANYONE can make the most amazing Spirograph designs. This paper presents the math and code needed to start making your own beautiful hypotrochoid and epitrochoid designs. (Received September 25, 2017)