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Robert M Sulman* (sulmanrm@oneonta.edu) and **Tyler Fedoris**. *Polynomial Orbits of the Ring of Integers Modulo n* . Preliminary report.

Polynomial Orbits of the Ring $(\mathbb{Z}_n, +_n, \bullet_n)$ - Robert Sulman and Tyler Fedoris (SUNY Oneonta)

We examine the orbits of polynomials acting on the ring $(\mathbb{Z}_n, +_n, \bullet_n)$ for various n . These orbits are described as graphs, with inverse-pairs of units seen as well. We shall see a great deal of symmetry, and the many structures that arise are analyzed: Modulus and coefficients (of the given polynomial) determine several features of such graphs. Furthermore, when a (polynomial) function f is fixed and we vary the modulus in a “consistent” manner (such as $n = 2k$ for $k = 6, 7, 8, 9, \dots$), we see the resulting orbit graph structures change with re-occurring features in a fractal-like way. (Received August 30, 2017)