

1125-11-1114

Edray H Goins (egoins@math.purdue.edu) and **Alejandra Alvarado***
(aalvarado2@eiu.edu). *Arithmetic Progressions on Conic Sections.*

The set $\{1, 25, 49\}$ is a 3-term collection of integers which forms an arithmetic progression of perfect squares. We view the set $\{(1, 1), (5, 25), (7, 49)\}$ as a 3-term collection of rational points on the parabola $y = x^2$ whose y -coordinates form an arithmetic progression. In this exposition, we provide a generalization to 3-term arithmetic progressions on arbitrary conic sections \mathcal{C} with respect to a linear rational map $\ell : \mathcal{C} \rightarrow \mathbb{P}^1$. We explain how this construction is related to rational points on the universal elliptic curve $Y^2 + 4XY + 4kY = X^3 + kX^2$ classifying those curves possessing a rational 4-torsion point. (Received September 14, 2016)