1154-11-1552 **Kubra Nari*** (nari15@itu.edu.tr), **Enver Ozdemir** (ozdemiren@itu.edu.tr), **Neslihan Aysen Ozkirisci** (aozk@yildiz.edu.tr) and **Elif Segah Oztas** (esoztas@kmu.edu.tr).

Computing Roots in Finite Fields. Preliminary report.

Let $\mathbb{F}$ be a finite field and p be a prime integer. For an element a in $\mathbb{F}$ finding a p^{th} root of a (if exists) is an active research topic in computational number theory. The problem has been long investigated for $p = 2$ and several theoretical and practical solutions were presented. For $p = 3$ the well known Lucas sequences were employed. In this research, we present a method of finding p^{th} root of elements in $\mathbb{F}$ finite field for $p = 3, 5, 7$. We exploit elliptic curves and their corresponding torsion subgroups to construct an efficient algorithm in practice. (Received September 16, 2019)