1096-11-1841 **George Grossman*** (gross1gw@cmich.edu), Department of Mathematics, Central Michigan University, Mount Pleasant, MI 48858, and **Tomas Zdrahal**, **Aklilu Zeleke** and **Xinyun Zhu**.
Recurrence relations and combinatorial identities. Preliminary report.

In this paper we present the solution of pair of recurrence relations that subsequently yields various combinatorial identities, involving Fibonacci and Lucas numbers. Let $\alpha_1 = (b + \sqrt{b^2 + 4c})/(2c)$ and $\alpha_2 = (b - \sqrt{b^2 + 4c})/(2c)$ for real numbers $b, c,\ c \neq 0$. We show how an expression of the form $(\alpha_1^{n+1} - \alpha_2^{n+1})/(\alpha_1 - \alpha_2), n = 0, 1, 2, \ldots$ can be represented in countably many distinct, nontrivial ways, in terms of rational functions and binomial coefficients. (Received September 16, 2013)