1135-VV-2810 **Li Feng** (li.feng@asurams.edu), Department of Mathematics and Computer Sci., Albany State University, Albany, GA 31705, and **Brandie T. Hall*** (bhall12@students.asurams.edu), Department of Mathematics and Computer Sci., Albany State University, Albany, GA 31705. *The Arithmetic Combinations of Four a's.*

The Four 3's puzzle is a very popular and elementary problem. It asks if one can use arithmetic operations (+, -, * and /) to combine four 3's in different order and come up with 0, 1, 2, 3 . . . or 10 as its result. This problem motivates many other similar puzzles such as the Four 2's puzzle, the Four 4's puzzle. In this presentation, we will elevate the puzzle into the general Four a's puzzle. We calculate out all the possible combination values and the corresponding frequencies. We prove the following more advanced result. Except for a finitely many real numbers, every real number a, the arithmetic combinations of four will result 61 different values. Some interesting questions related to the problem will also be raised. (Received September 26, 2017)