1038-20-2 **Michael J Larsen***, Indiana University. *Solving equations in finite groups.*

An old (still unproved) conjecture of Ore asserts that every element in a finite simple group can be realized as a commutator. In other words, the equation

$$xyx^{-1}y^{-1} = g$$

has at least one solution (x, y) for every element g. I will talk about various methods, combinatorial and geometric, for proving that group equations have solutions over finite simple groups. This work is joint with Aner Shalev. (Received April 11, 2007)