

**ZMATH 2008a.00025**

**Milou, Eric; Schiffman, Jay L.**

**The spirit of discovery: The digital roots of integers.**

Math. Teach. (Reston) 101, No. 5, 379-383 (2007-08).

Summary: In many mathematics classes, students are asked to learn via the discovery method, in the hope that the intrinsic beauty of mathematics becomes more accessible and that making conjectures, forming hypotheses, and analyzing patterns will help them compute fluently and solve problems creatively and resourcefully (NCTM 2000). The activity discussed in this article was conducted with a group of preservice and inservice teachers, and the objectives included examining patterns, making conjectures, and using data analysis to construct scatter plots and tables, all in the spirit of discovering mathematics. This activity is based on a concept called the multiplicative digital root of an integer (Sloane 1973). (In this article, the term "integers," unless otherwise qualified, mean positive integers.) An activity of this sort can stimulate meaningful discovery by having participants collect data, harness technology, explore patterns, form conjectures based on the analysis of such patterns, use counting tools, and improve computational proficiency as part of their professional development. (Contains 2 figures and 8 tables.) (ERIC)

*Classification:* B50 F69

*Keywords:* discovery learning; teacher education; mathematical concepts; mathematics skills; faculty development; problem solving; secondary school mathematics; number concepts; number theory