

Interactive theorem proving, automated reasoning, and mathematical computation

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I will discuss three ways that computers can be used to extend mathematical knowledge. Interactive theorem proving involves the use of computational proof assistants to verify the correctness of mathematical results. Systems of automated reasoning traverse large search spaces to find mathematical proofs, structures, and data. Computer algebra systems provide flexible means of symbolic and numeric computation. I will discuss ways that these three approaches, which have complementary aims, can be better integrated.