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The case for crunchy methods in practical mathematics.

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This paper focuses on the distinction between methods which are mathematically "clever", and those which are simply crude, typically repetitive and computer intensive, approaches for "crunching" out answers to problems. Examples of the latter include simulated probability distributions and resampling methods in statistics, and iterative methods for solving equations or optimisation problems. Most of these methods require software support, but this is easily provided by a PC. The paper argues that the crunchier methods often have substantial advantages from the perspectives of user-friendliness, reliability (in the sense that misuse is less likely), educational efficiency and realism. This means that they offer very considerable potential for simplifying the mathematical syllabus underlying many areas of applied mathematics such as management science and statistics: crunchier methods can provide the same, or greater, technical power, flexibility and insight, while requiring only a fraction of the mathematical conceptual background needed by their cleverer brethren.

Classification: N10