

# Make Your Code More Accurate

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When using numbers of type float or double, are you aware that  $0.1+0.2$  does not equal  $0.3$  ? Let's review the theory behind such pitfalls, and discuss some case studies :

- the quadratic equation in kinematics calculations
- variance calculations in data analysis
- calculations with complex numbers
- accurate summation in large Monte-Carlo calculations
- precision in matrix and geometry calculations (the interest of factoring)
- differential equations

Elements of numerical calculation

- solution of equations, minimisation
  - scaling: combining accuracy and efficiency
- Clean code for computation

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