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1.8 Example of application: rainfall problemBibliography; Chapter 2. Various types of elements; 2.0 Introduction; 2.1 List of the elements presented in this chapter; 2.2 One-dimensional elements; 2.2.1 Linear element (two nodes, C0); 2.2.2 High-precision Lagrangian elements: (continuity C0); 2.2.3 High-precision Hermite elements; 2.2.4 General elements; 2.3 Triangular elements (two dimensions); 2.3.1 Systems of coordinates; 2.3.2 Linear element (triangle, three nodes, C0); 2.3.3 High-precision Lagrangian elements (continuity C0); 2.3.4 High-precision Hermite elements
2.4 Quadrilateral elements (two dimensions)2.4.1 Systems of coordinates; 2.4.2 Bilinear element (quadrilateral, 4 nodes, C0); 2.4.3 High-precision Lagrangian elements; 2.4.4 High-precision Hermite element; 2.5 Tetrahedral elements (three dimensions); 2.5.1 Systems of coordinates; 2.5.2 Linear element (tetrahedron, four nodes, C0); 2.5.3 High-precision Lagrangian elements (continuity C0); 2.5.4 High-precision Hermite elements; 2.6 Hexahedric elements (three dimensions); 2.6.1 Trilinear element (hexahedron, eight nodes, C0); 2.6.2 High-precision Lagrangian elements (continuity C0)
2.6.3 High-precision Hermite elements

Sommario/riassunto

This book offers an in-depth presentation of the finite element method, aimed at engineers, students and researchers in applied sciences.The description of the method is presented in such a way as to be usable in any domain of application. The level of mathematical expertise required is limited to differential and matrix calculus.The various stages necessary for the implementation of the method are clearly identified, with a chapter given over to each one: approximation, construction of the integral forms, matrix organization, solution of the algebraic systems and architecture o