

1. Record Nr.	UNINA9910568243503321
Autore	Vince John (John A.)
Titolo	Mathematics for Computer Graphics // by John Vince
Pubbl/distr/stampa	London : , : Springer London : , : Imprint : Springer, , 2022
ISBN	9781447175209 9781447175193
Edizione	[6th ed. 2022.]
Descrizione fisica	1 online resource
Collana	Undergraduate Topics in Computer Science, , 2197-1781
Disciplina	006.6869
Soggetti	Computer graphics Computer science - Mathematics Computer Graphics Mathematical Applications in Computer Science Infografia Matemàtica aplicada Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Introduction -- Numbers -- Algebra -- Trigonometry -- Coordinate Systems -- Determinants -- Vectors -- Matrix Algebra -- Complex Numbers -- Geometric Transforms -- Quaternion Algebra -- Quaternions in Space -- Interpolation -- Curves and Patches -- Analytic Geometry -- Barycentric Coordinates -- Geometric Algebra -- Calculus: Derivatives -- Calculus: Integration -- Worked Examples -- Appendix A -- Appendix B -- Index.
Sommario/riassunto	John Vince explains a comprehensive range of mathematical techniques and problem-solving strategies associated with computer games, computer animation, special effects, virtual reality, CAD and other areas of computer graphics in this completely revised and expanded sixth edition. The first five chapters cover a general introduction, number sets, algebra, trigonometry and coordinate systems, which are employed in the following chapters on determinants, vectors, matrix algebra, complex numbers, geometric transforms, quaternion algebra, quaternions in space, interpolation, curves and patches, analytical

geometry and barycentric coordinates. Following this, the reader is introduced to the relatively new subject of geometric algebra, followed by two chapters that introduce differential and integral calculus. Finally, there is a chapter on worked examples. Mathematics for Computer Graphics covers all of the key areas of the subject, including: Number sets Algebra Trigonometry Complex numbers Coordinate systems Determinants Vectors Quaternions Matrix algebra Geometric transforms Interpolation Curves and surfaces Analytic geometry Barycentric coordinates Geometric algebra Differential calculus Integral calculus This sixth edition contains approximately 150 worked examples and over 330 colour illustrations, which are central to the author's descriptive writing style. Mathematics for Computer Graphics provides a sound understanding of the mathematics required for computer graphics software and setting the scene for further reading of more advanced books and technical research papers.
