- "A fascinating investigation of the relationship between math and music—what they have in common, how they differ, and how each has informed the other, from Pythagoras to Schoenberg, from violin strings to superstrings. A delightful examination of how math and culture interact."
- -IAN STEWART, author of Significant Figures
- "Music by the Numbers offers a great many original revelations about the connections between mathematics and music."
- -JOSEPH MAZUR, author of Fluke: The Math and Myth of Coincidence
- "I loved this book. I couldn't put down Maor's interesting fusion of music theory, mathematics, history, physics, and personal narrative. No other book blends these elements in such an appealing way."
 - -ROBERT SCHNEIDER, musician and mathematician



- "Writing beautifully as he explores the relationship between mathematics and classical music, Eli Maor makes mathematics sing like a violin."
- -JERRY KING, author of *The Art of Mathematics*
- "Eli Maor is always a good storyteller and *Music by the Numbers* should interest mathematicians who enjoy classical music as well as musicians who are curious about the mathematics behind music."
 - -ROBERT W. LANGER, University of Wisconsin-Eau Claire







	Preface	ix
1	Prologue: A World in Crisis	1
2	String Theory, 500 BCE	13
	SIDEBAR A. It's All about Nomenclature	22
3	Enlightenment	24
4	The Great String Debate, 1730–1780	38
	SIDEBAR B. The Slinky	52
5	A Most Precious Gift	55
6	Musical Temperament	70
	SIDEBAR C. Music for the Record Books: The Lowest, the Longest, the Oldest, and the Weirdest	78
7	Musical Gadgets: The Tuning Fork and	
	the Metronome	82
8	Rhythm, Meter, and Metric	91
9	Frames of Reference: Where Am I?	99
	SIDEBAR D. Musical Hierarchies	116
10	Relativistic Music	120
11	Aftermath	130
	SIDEBAR E. The Bernoulli	138
12	The Last Pythagoreans	142
	Bibliography	147
	Illustration Credits	149
	Index	151