

1. Record Nr.	UNINA9910917190103321
Autore	Sokoowski Andrzej
Titolo	Developing Students' Reasoning in Precalculus: Covariational Explorations Enriched by Rates of Change and Limits // by Andrzej Sokolowski
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031664410 9783031664403
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (525 pages)
Collana	Springer Texts in Education, , 2366-7680
Disciplina	510.71
Soggetti	Mathematics - Study and teaching Teachers - Training of Mathematics Education Teaching and Teacher Education
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Function, an Entity Relating Variables and Parameters -- 2. Linear and Quadratic Functions -- 3. Analysis of Higher Degree Polynomial Functions -- 4. Rational Functions -- 5. Exponential Functions -- 6. Logarithmic Functions.
Sommario/riassunto	This book aims to develop high school and undergraduate students' covariational reasoning and algebraic skills to succeed in calculus and STEM subjects. The book reflects on contemporary research in math education where students explore algebraic tools and reason mathematically to construct new knowledge. The volume is made up of six chapters covering polynomial, rational, and transcendental functions. An early introduction of limits to support the analyses of linear functions progresses to other book chapters ensuring consistency, parallelism, and a scaffold knowledge delivery. A gradual introduction to function rates of change along with function monotonicity and concavity intertwines with modeling techniques that merge students' mathematical reasoning with scientific contexts. A forthcoming online component of the book consists of ready-to-download exploratory modeling activities and worksheets that further

solidify students' fluency in understanding how to apply abstract math concepts to gain a deeper understanding of natural and social sciences.
