

## Model-Centered Learning

### Pathways to Mathematical Understanding Using GeoGebra

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*Model-Centered Learning: Pathways to Mathematical Understanding Using GeoGebra* is the first book to report on the international use of GeoGebra and its impact on both theories and practices of mathematics teaching and learning. The open source nature of GeoGebra has led to a growing international community of mathematicians, teacher educators, and classroom teachers who seek to tackle the challenges of mathematics education through a community approach and grassroots initiative. With the model-centered perspective, the chapters address a variety of issues related to mathematics education, all centered round the goal of achieving genuine mathematical understanding by taking advantage of the new interactive and dynamic representational and computational resources of GeoGebra. There are six themes running through the chapters: 1) the history, philosophy, and theory behind the GeoGebra project, 2) the use of dynamic models and simulations in mathematics education, 3) the influences of GeoGebra use on problem solving strategies and attitude change, 4) GeoGebra as cognitive and didactical tools, 5) curricular challenges and initiatives involving the use of GeoGebra, 6) equity and sustainability of technology integration in mathematics education.

Together, the book chapters provide a promising prospect for bringing about positive changes in mathematics education at all levels through accessible technologies and collaborative endeavors of the international community. Moving beyond the traditional view of mathematics and mathematics teaching, this book reviews both theories and practices for enhancing students' mathematical understanding through mathematical modeling and didactical modeling, supported by new developments in model-centered learning and instruction.

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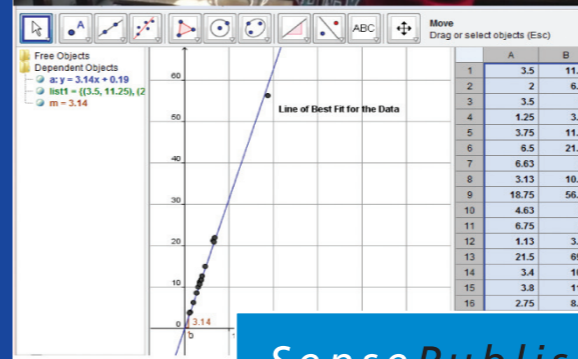
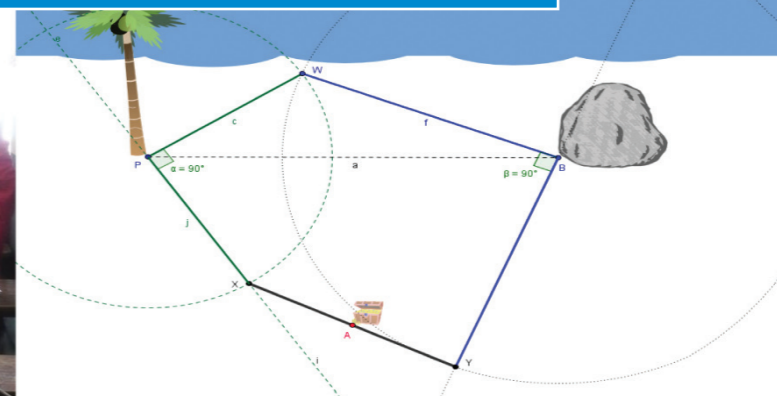
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