



Advanced Algebra Concepts and Connections Unit 3: Investigating Radical Functions



Overview:

This unit is designed to provide interactive, hands-on, and virtual lessons to support students' understanding of radical functions. Students will build on their prior experience with nonlinear functions to explore a new type of function with new characteristics of the graphs of these functions. After engaging in the interactive lessons and activities, students should be able to write radical functions as functions with rational exponents and use these functions to solve real-world problems. Students should also be able to create and analyze graphs of radical functions and make sense of the graph by analyzing key features of the graph and select appropriate tools strategically (including technology) to model radical functions. Given real-world situations, students should be able to solve radical functions with rational exponents. Students should be able to create and solve equations in one variable recognizing extraneous solutions. Learning experiences in this unit will allow students to engage in the process of mathematical modeling to arrive at conclusions and solutions that explain real-life phenomena.

Learning Targets:

- recognize the purposes among sample surveys, experiments, and observational studies as methods of data collection.
- explain the purpose of randomization in data collection studies.
- distinguish between primary and secondary data.
- design and carry out a study with a recognition of error in the design.
- evaluate ethics, privacy, potential bias, and confounding variables in a statistical investigation.
- implement strategies for organizing and preparing big data sets.
- evaluate appropriateness of study design, analysis methods, and statistical measures used in a data collection study.
- employ strategies to work with messy data.
- distinguish between population distributions, sample data distributions, and sampling distributions.
- make inferences and form conclusions about populations based on sample statistics and random samples.
- communicate conclusions using appropriate statistical language.
- calculate and interpret z-scores.
- compare real world data sets by using z-scores.
- estimate percentages using the Empirical Rule, z-scores, and technology

Key Vocabulary: (linked to GA DOE Interactive Glossary)

Asymptote	Extraneous Solutions	Radical Expression	Root
Cube Root	Index	Radical Symbol ($\sqrt{\quad}$)	Square Root
Cube Root Function	Inverse	Radicand	Square Root Function
End Behavior	Irrational Number	Rational Exponent	
Exponent	Radical		

Supporting Resources:

<http://ctlslearn.cobbki2.org/>

<https://gavirtual.instructure.com/courses/34342>

[Domain of a radical function](#)

[Fractional Exponents](#)

[Solve a Radical Equation](#)