

**Official SAT Practice**

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# Lesson Plans

for Teachers by Teachers

LESSON 12 (2 OF 4 FOR PASSPORT TO ADVANCED MATH)

## Exponential Functions, Equations, and Expressions and Radicals; Dividing Polynomials by a Linear Expression and Solving Rational Equations

**Subscore:** [Passport to Advanced Math](#)

**Focus:** Building quadratic and exponential functions, solving radical equations, and working with radical equations

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### Objectives:

Students will

- build quadratic and exponential functions that model a given context.
- solve radical equations.
- work with rational expressions, including fractions with a variable in the denominator.

### Before the Lesson:

- Review the Teacher Notes.
- Make sure that students have access to Official SAT<sup>®</sup> Practice during class.
- Make sure that students have access to the example problems from the *SAT Study Guide for Students*.

**Partner Work | 40 minutes**

- Have students complete the Basic and Harder Examples for “Quadratic and exponential word problems,” “Manipulating quadratic and exponential expressions,” “Radical and rational exponents,” and “Radical and rational equations,” in Official SAT Practice on Khan Academy®.
  - ♦ Remind students to pause the video as soon as they can see the problem. Once students have worked through the problem, have them watch the video to check their work.

**Teacher Notes**

- The videos from these four sections add up to about 35 minutes. Encourage students to discuss their solutions and questions for each problem prior to watching the video.

## Alternative Activity—Classwork and Discussion (as time allows)

- Have students complete Examples 8–11 pages 232–234 in [Chapter 18 of the SAT Study Guide for Students](#). Answers and explanations are included in the Study Guide.
  - ♦ You may also want to review the margin notes from these pages of the Study Guide with your students

## Wrap-Up: For your term book | 5 minutes

- Exponential growth
- Exponential decay
- Extraneous roots

## Homework | 20 minutes

- This set of practice problems may take students more than 20 minutes. Complete practice problems in Official SAT Practice on Khan Academy in these skill areas as time allows:
  - ♦ Quadratic and exponential word problems
  - ♦ Manipulating quadratic and exponential expressions
  - ♦ Radical and rational exponents
  - ♦ Radical and rational equations
- Encourage students to move on to the higher skill level once they successfully complete the problems in their current skill level and can “level up.”