



Mathematics eLearning Guide – Week 4

Algebra I: Radical Expressions

- Students will simplify radicals.
- Students will rationalize denominators.

Geometry: Similar Solids

- Students will determine if two solids are similar.
- Students will compare the surface area of similar solids.
- Students will compare the volume of similar solids.

MMA: Borrowing Money

- Students will understand Annual Percentage Rate (APR).
- Students will understand Loan calculation.
- Students will determine the repayment amount for loans and credit cards.

Algebra II: Rational Function

- Students will simplify rational expressions.
- Students will multiply and divide rational expressions.

preCalculus: Polar Curves

- Students will identify polar curves.
- Students will graph polar curves.

AP Courses: Calculus AB, Calculus BC, Statistic

- **Content Support** from Khan Academy: [Calculus AB](#), [Calculus BC](#), [Statistics](#)
- **AP Resources** from College Board: [Calculus AB](#), [Calculus BC](#), [Statistic](#)
- **AP Exam Test Prep** from Shmoop: [Login directions](#), [Calculus AB](#), [Calculus BC](#), [Statistics](#)

MATH - Algebra 1

Objectives

- Students will simplify radicals (square roots) expressions.
- Students will rationalize the denominator by moving the square root from the denominator to the numerator.

Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- In this unit, your students will simplify radical expressions involving algebraic operations. The square root of a positive integer that is not a perfect square is always an irrational number. The decimal representation of such a number loses precision when it is rounded. Instead of using decimal representation, the standard way to write such a number is to use a simplified radical form.

For Students

Simplify Radicals

- [Task 1](#) **Video:** Simplify Square Roots
- [Task 2](#) **Practice:** Simplify Square Roots (online)
- [Task 3](#) **Video:** Simplify Radicals with Variables
- [Task 4](#) **Practice:** Simplify Square Roots with Variables(online)
- [Task 5](#) **Review:** Simplify Square Roots Review(notes)
- [Task 6](#) **Practice:** Simplify Radical Expressions (practice with answer key)

Rationalizing the Denominator

- [Task 1](#) **Video:** Intro to Rationalizing the Denominators
- [Task 2](#) **Practice:** Rationalizing the Denominators (practice with answer key)

Resources

- [Desmos Graphing Calculator](#)
- **Additional Video:** [Simplify Square Roots](#)
- **Additional Practice:** [Rationalizing the Denominators](#)
- [IXL](#)

MATH - Geometry

Objectives

- Students will identify congruent and similar solids.
- Students will determine and describe how changes in the linear dimensions of a solid shape affect its surface area or volume.
- Students will practice finding the circumference of a circle using the formula $2\pi r$ and solving for the diameter or radius of a circle when the circumference or area is given.

Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Your student will be building on skills learned in 8th grade to determine and describe how changes in the linear dimensions of a shape affect its surface area or volume, including proportional and non-proportional dimensional change.
- Your student will recall and apply the formula for the circumference and area of a circle to solve problems.

For Students

Similar Solids

- [Task 1](#) **Video:** Similar and Congruent Solids
- [Task 2](#) **Practice:** Similar Solids
- [Task 3](#) **Video:** Ratio of Similar Solids
- [Task 4](#) **Practice:** Similarity of Solids (online)
- [Task 5](#) **Practice:** Surface Area and Volume of Similar Solids (practice & answer key)

Circles

- [Task 1](#) **Video:** Radius, Diameter, Circumference, Pi
- [Task 2](#) **Practice:** Radius & Diameter (online)

Resources

- **Extra Practice:** [Area & Volume of Similar Solids](#)
- **Extra Resource:** [Circumference of a Circle](#)

MATH - MMA

Objectives

- Students will understand how the Annual Percentage Rate is used to compare interest rates.
- Students will learn how to use online calculators to determine the repayment amount for loans and credit cards.

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For Parents

- In this lesson, your student focus on the various sources people use for borrowing money or using credit. The purpose of this lesson is to show your student, as they enter the world of credit and borrowing, just what options they have.

For Students

Borrowing Money

- **Task 1** Borrowing Money Activity 1: Decoding Loans with APR ([answer key](#))
<http://www.bankrate.com>
- **Task 2** Borrowing Money Activity 2: Loan Calculation ([answer key](#))
<https://www.investopedia.com>
- **Task 3** Borrowing Money Activity 3: Credit Card Payoff Calculator([answer key](#))
<http://www.bankrate.com>

Resources

- [Practical Money Skills](#)
- [Bankrate](#)
- [Investopedia](#)

MATH - ALGEBRA II

Objectives

- Students will simplify rational expressions.
- Students will determine the product and quotient of rational expressions.

Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Your student will learn how to simplify, add, multiply, and divide rational expressions. A rational function is an algebraic fraction such that both the numerator and the denominator are polynomials. Many real-world problems require us to find the ratio of two polynomial functions (Rational Functions). Problems involving rates and concentrations often involve rational functions.

For Students

Simplify Rational Expressions

- [Task 1](#) **Video:** Intro to Rational Expressions ([notes](#))
- [Task 2](#) **Video:** Simplifying rational expressions: common monomial factors
- [Task 3](#) **Practice:** Simplifying rational expressions: common monomial factors (online)
- [Task 4](#) **Video:** Simplifying rational expressions: common binomial factors ([notes](#))
- [Task 5](#) **Practice:** Simplifying rational expressions: common binomial factors (online)

Multiply and Divide Rational Expressions

- [Task 1](#) **Video:** Multiplying rational expressions
- [Task 2](#) **Video:** Dividing rational expressions
- [Task 3](#) **Practice:** Multiply & divide rational expressions(online)
- [Task 4](#) **Practice:** Multiply & divide rational expressions (practice & answer key)

Resources

- [Desmos Graphing Calculator](#)
- [Math is Fun](#)
- [Openstax](#)
- **Extra Practice:** [Simplify, Multiply, Divide Rational Expressions](#)

MATH - preCALCULUS

Objectives

- Students will learn about polar curves, rose curves, limacon curves, and lemniscates.
- Students will test polar equations for symmetry.
- Students will graph polar equations by plotting points.

Beginning the week of April 14, and in alignment with our Adjusted Grading Guidelines, teachers in grades 6-12 may assign student work from the Digital Backpack eLearning guide, or from the teacher's itsLearning course, for a grade.

For Parents

- Your student will learn graphs that have circular symmetry often have simple polar equations, that can be very helpful in calculus.

For Students

Graph Polar Equations

- [Task 1](#) **Video:** Graphs of Polar Equations
- [Task 3](#) **Practice:** Graphs of Polar Equations (practice & answer Key)
- [Task 2](#) **Video:** Graphing a polar equation
- [Task 3](#) **Practice:** Graphing polar equations(practice & answer key)

Resources

- [Desmos Graphing Calculator](#) Polar coordinate
- [Openstax](#)
- **Extra video:** [Graphing Polar Equations](#)