



Mathematics eLearning Guide – Week 7

Algebra I: Solve Quadratic Equations

- Students will solve quadratic equations by taking square roots.
- Students will solve quadratic equations by factoring.

Geometry: Circles

- Students will identify the lines and segments that pass through a circle.
- Students will understand the relationship between the angles and the arcs.

MMA: Factoring

- Students will find the greatest common factor of polynomials.
- Students will factor trinomials.

Algebra II: Rational Function

Students will graph inverse variation.

- Students will graph rational functions.

preCalculus: Arithmetic Sequences

- Students will use a recursive formula.
- Students will use an explicit formula.

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](#), [Statistics](#)
- **AP Exam Test Prep** From Shmoop: [Login directions](#), [Calculus AB](#), [Calculus BC](#), [Statistics](#)

MATH - Algebra 1

Objectives

- Students will be able to solve quadratic equations by taking square roots.
- Students will be able to solve quadratic by factoring.

Note: 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 student will learn about solving quadratic equations. Many real-world situations deal with quadratics and parabolas. Throwing a ball, diving from a platform, and hitting a golf ball are all examples of situations that can be modeled by quadratic functions. They are frequently used in physics, engineering, and other sciences.

For Students

Factoring Quadratic

- [Task 1 Video](#): Solving quadratics by taking square roots ([notes](#))
- [Task 2 Practice](#): Quadratics by taking square roots intro(online)
- [Task 3 Video](#): Solving quadratics by factoring; leading coefficient = 1 ([notes](#))
- [Task 4 Practice](#): Quadratics by factoring(online)
- [Task 5 Video](#): Solving quadratics by factoring: leading coefficient $\neq 1$
- [Task 6 Practice](#): Solving Quadratic by Factoring (practice & answer key)

Resources

- [Desmos Graphing Calculator](#)
- [Additional Video: Factoring quadratics negative common factor + grouping](#)
- [Additional Practice: Quadratic Factoring Practice](#)
- [IXL](#)

MATH - Geometry

Objectives

- Students will be able to apply theorems that include angles, radii, chords, tangents, and secants.
- Students will be able to find the relationship between the angles formed by the lines and segments that intersect circles.

Note: Note: 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 students will study the relationships of lines and line segments that pass through a circle. Students will begin by identifying different lines and line segments that pass through a circle. Students will study the relationship between the angles formed by the lines and segments that intersect circles.

For Students

Arcs and Sectors of Circles

- **Task 1 Video:** Intro to tangent, secant, chord, Arc
- **Task 2 Video:** Inscribed angles
- **Task 3 Practice:** Inscribed angles
- **Task 4 Video:** Circle Theorems - Angles with Chords, Secants, and Tangent
- **Task 5 Practice:** Secant- Tangent Angles (practice & answer key)

Resources

- **Extra Practice:** [Inscribed angles challenge problems](#)
- **Extra Practice:** [Circles Theorems](#)
- **Extra Resource:** [Inscribed Angles](#)

MATH - MMA

Objectives

- Students will find the greatest common factor of two or more expressions.
- Students will factor trinomials of the form x^2+bx+c .

Note: Beginning the week of April 14th, 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 student will learn about quadratic functions. Many real-world situations deal with quadratics and parabolas. Throwing a ball, diving from a platform, and hitting a golf ball are all examples of situations that can be modeled by quadratic functions. They are frequently used in physics, engineering, and other sciences.

For Students

Factoring

- [Task 1 Video](#): Factoring with the distributive property (**notes**)
- [Task 2 Practice](#): GCF factoring introduction (online)
- [Task 3 Video](#): Factoring quadratic as $(x+a)(x+b)$
- [Task 4 Practice](#): Factoring quadratic intro (online)
- [Task 5 Practice](#): Factoring quadratics with a common factor (online)

Additional Resources

- [Desmos Graphing Calculator](#)
- [Additional Video: Factoring quadratics as \$\(x+a\)\(x+b\)\$](#)
- [Additional Practice: Monomial factors of polynomials](#)
- [Additional Practice: Quadratic Factoring Practice](#)

MATH - ALGEBRA II

Objectives

- Students will be able to graph inverse variation using transformation.
- Students will be able to graph and analyze rational functions.

Note: 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 graph inverse variation and rational functions. 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

Rational Functions

- **Task 1 Video:** Graphing Inverse Variation
- **Task 2 Practice:** Inverse Variation Graphs (practice & answer key)
- **Task 3 Video:** Graph Basic Rational Functions
- **Task 4 Video:** Graphing Rational Functions (same degree)
- **Task 5 Video:** Graphing Rational Functions (**notes**)
- **Task 6 Practice:** Graphing Rational Functions (practice & answer key)

Resources

- [Desmos Graphing Calculator](#)
- Extra video: [Transformation of the Rational Parent Function](#) (Graphing Inverse Variation)
- Extra Practice: [MathBitsNotebook.com](#)
- Extra Resource: [Analysis of Rational Functions](#)
- [Openstax](#)

MATH - preCALCULUS

Objectives

- Students will be able to use a recursive formula for an arithmetic sequence.
- Students will be able to use an explicit formula for an arithmetic sequence.

Note: 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, students will use recursive, explicit and nth term notation to represent arithmetic sequences. An arithmetic sequence is a sequence of numbers such that the difference of any two successive members of the sequence is a constant.

For Students

Arithmetic Sequences

- [Task 1 Video](#): Sequences intro
- [Task 2 Video](#): Intro to arithmetic sequences
- [Task 3 Practice](#): Recursive formulas for arithmetic sequences(online)
- [Task 4 Video](#): Explicit formulas for arithmetic sequences
- [Task 5 Practice](#): Explicit formulas for arithmetic sequences(online)

Resources

- [Desmos Graphing Calculator](#)
- [Openstax](#)
- [Geogebra](#)