

01 Factoring

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **4 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

Math Lab is designed to support students and cultivate favorable attitudes towards mathematics. This course fosters conceptual understanding and procedural fluency of important content through relevant meaningful mathematical experiences while accommodating for the speed at which students learn. Math Lab encourages and develops problem-solving ability and critical thinking skills. Students will have access to resources that reinforce the curriculum and help to increase mastery of knowledge and skills. Small group instruction will encourage the discovery of mathematical content and support students' efforts to learn and achieve in their study of mathematics.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Objectives/Enduring Understandings:

- Rules and properties of arithmetic and algebra can be applied together with equivalence to transform polynomial expressions.

Essential Questions:

- Why is it necessary to factor a polynomial?
- Can two algebraic expressions that appear to be different, be equivalent?
- How do the terms of a trinomial help determine its factored form?

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand that:

- Polynomial expressions and equations can be written in specific forms (factored, standard, or other) for specific purposes (solving, identifying critical attributes, graphing)
- There are various ways in which a polynomial equation can be factored.

Procedural Knowledge

Students will be able to:

- Identify the GCF and factor a polynomial based on the GCF
- Identify the relationship between the factored and standard forms of a trinomial
- Express trinomials in factored form with varying leading coefficients
- Apply factor-by-grouping to factor four-term polynomials
- Recognize and factor perfect square trinomials
- Recognize and factor difference of squares

CONTENT AREA STANDARDS

MA.A-APR.A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
MA.A-SSE.A.2	Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
MA.A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
MA.A-SSE.A.1b	Interpret complicated expressions by viewing one or more of their parts as a single entity.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

CS.K-12.3.a	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
CS.K-12.3.b	Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CS.K-12.3.c	Evaluate whether it is appropriate and feasible to solve a problem computationally.
LA.K-12.NJSLSA.R7	Integrate and evaluate content presented in diverse media and formats, including visually

	and quantitatively, as well as in words.
TECH.9.4.12.IML.3	Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S-ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8).
TECH.9.4.12.IML.4	Assess and critique the appropriateness and impact of existing data visualizations for an intended audience (e.g., S-ID.B.6b, HS-LS2-4).
TECH.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
TECH.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.

EVIDENCE OF LEARNING

Formative Assessments

- Student feedback/questioning/observation
- Error analysis
- Specific skill assessment/questions
- Survey/polling
- Task completion and review of quizzes and material presented in the Algebra II class

Summative Assessments

There will be no formal assessments in this course.

RESOURCES (Instructional, Supplemental, Intervention Materials)

Desmos Activities: [Factoring using the GCF](#), [Factoring using the box method](#), [Factoring a = 1 Practice](#), [Factoring card sort a is not equal to 1](#), [factoring special patterns](#)

Youtube Video: [Airplane method of factoring](#)

Kuta Software worksheets

Approved course textbook

INTERDISCIPLINARY CONNECTIONS

Interdisciplinary connections are frequently addressed through modeling and application problems whereby students solve and analyze situations taken from business, physics, engineering, biology, statistics, geography, and numerous other fields. Examples can be found in topic specific textbook problems and digital resources.

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.