Unit #9: Synthetic Division

Content Area: **Math**
Course(s):
Time Period:
Length: **6 Days**
Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Synthetic Division

Learning Objectives

- Derive the quadratic formula from this form.
- Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x – p) 2 = q that has the same solutions.
- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- choose and interpret the scale and the origin in graphs and data displays.
- choose and interpret units consistently in formulas.
- Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.
- Solve quadratic equations in one variable.
- Use units as a way to understand problems and to guide the solution of multi-step problems.

Essential Skills

- Essential Skill 1 - Artists will be able to apply scales to graphs, origin of graph and data displays.
- Essential Skill 10 - Artists will be able to use completing the square to transform quadratic equations into the form (x-p)^2=q.
- Essential Skill 11 - Artists will be able to rewrite rational expressions in different forms.
- Essential Skill 12 - Artists will be able to use inspections, long division, or synthetic division or CAS to rewrite rational expression.
- Essential Skill 2 - Artists will be able to use units to make sense of solutions.
- Essential Skill 3 - Artists will be able to apply scales to multi-step problems and formulas.
- Essential Skill 4 - Artists will be able to interpret units in formulas.

- Essential Skill 5 - Artists will be able to choose units in formulas.
- Essential Skill 6 - Artists will be able to choose limits on measurements when reporting quantities.
- Essential Skill 7 - Artists will be able to choose the level of accuracy.
- Essential Skill 8 - Artists will be able to solve quadratic equations in one variable, including completing the square and quadratic formula.
- Essential Skill 9 - Artists will be able to derive the quadratic formula by completing the square.

Standards

MATH.9-12.N.Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
MATH.9-12.N.Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
MATH.9-12.A.APR.D.6	Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
MATH.9-12.A.REI.B.4.a	Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

Instructional Tasks/Activities

- Academic games
- Independent practice
- Ladder Activity
- Notes
- Ti-Nspire activities
- Worksheets

Assessment Procedure

- Class discussions
- Classroom Total Participation Technique
- Classwork/homework
- DBQ
- Electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- Identify the error problems
- Journal / Student Reflection

- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- Quizzes/tests
- Response and analysis questions
- Rubric
- Teacher Collected Data
- Teacher observations
- Test
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Power Point
- Quiziz
- Screencastify
- TI-Nspire CX-Cas activities throughout the unit as appropriate

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Special Education

Modifications and accommodations to this unit will be based on individual IEP needs and through the collaboration of the classroom teacher and the special education teacher under the direction of the Supervisor of Special Education.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline

- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- https://curriculum.newvisions.org/math/course/algebra-ii/
- www.Khanacademy.com