

Grade 10 Algebra 2 Lesson Plan

Textbook: Larson, Boswell, Kanold, Stiff, 2012, Algebra 2, Holt McDougal

Week 2 (9/2-9/6)

1.1 Graph Quadratic Functions in Standard Form

Vocabulary	quadratic function, standard form, parabola, vertex, axis of symmetry, minimum value, maximum value
Key Concept	Graphing a function of the form $y=ax^2$. Graphing a function of the form $y=ax^2+c$. Graphing a function of the form $y=ax^2+bx+c$. Finding the maximum or minimum value of a quadratic.
Activity	1. Explain the definitions and the concepts. 2. Make sure students understand the vocabularies. 3. Go over the examples on the textbook and ask the students questions. 4. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P6) # 1, 3, 21, 25, 27, 29, 33, 35, 41, 57

1.2 Graph Quadratic Functions in Vertex or Intercept Form

Vocabulary	vertex form, intercept form
Key Concept	Graphing a quadratic function written in vertex form. Graphing a quadratic function written in intercept form. FOIL method. Changing from intercept form to standard form.
Activity	1. Quick review from what they have learned from last section. 2. Go over the homework. 3. Explain the new definitions and the new concepts. 4. Make sure students understand the vocabularies. 5. Go over the examples on the textbook and ask the students questions. 6. Let students work on the problems and make sure they have the right concepts to solve the questions. 7. Review for quiz on 1.1-1.2
Homework	(P14) # 5, 7, 9, 15, 19, 25, 29, 33, 39, 51, 53

Week 3 (9/9-9/13)

1.3 Solve $x^2+bx+c=0$ by Factoring

Vocabulary	monomial, factor, binomial, trinomial, quadratic equation, root of an equation, zero of a function, perfect square, zero product property
Key Concept	Factoring trinomials of the form x^2+bx+c . Factoring monic quadratics with special patterns. Determining the zeros of a quadratic function.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions. 6. Quiz on 1.1-1.2
Homework	(P21) # 1, 3, 7, 11-19 odd, 25, 27, 29, 37, 45, 49, 59

1.4 Solve $ax^2+bx+c=0$ by Factoring

Vocabulary	monomial, trinomial
Key Concept	Factoring ax^2+bx+c when $c>0$. Factoring ax^2+bx+c when $c<0$. Factoring the difference of squares. Factoring perfect square trinomials. Solving quadratic equations.
Activity	1. Quick review from what they have learned from last section. 2. Go over the homework. 3. Explain the new definitions and the new concepts. 4. Make sure students understand the vocabularies. 5. Go over the examples on the textbook and ask the students questions. 6. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P29) # 3, 5, 7, 11, 13, 15, 23, 27, 33, 35, 39, 41, 47, 49

Week 4 (9/16-9/20)

1.5 Solve Quadratic Equations by Finding Square Roots

Vocabulary	Square root, radical, radicand, rationalizing the denominator, conjugates, principal square root
Key Concept	Using the properties of square roots. Rationalizing the denominator of fractions. Solving quadratic equations using square roots.
Activity	1. Quick review from what they have learned from last section. 2. Go over the homework. 3. Explain the new definitions and the new concepts. 4. Make sure students understand the vocabularies. 5. Go over the examples on the textbook and ask the students questions. 6. Let students work on the problems and make sure they have the right concepts to solve the questions. 7. Quiz on 1.3-1.4
Homework	(P35) # 3, 5, 7, 13, 17, 21-31 odd, 35, 39

1.6 Perform Operations with Complex Numbers

Vocabulary	imaginary unit i , complex numbers, imaginary numbers, complex conjugates, complex plane, absolute value of a complex number (modulus), pure imaginary number, standard form (series circuit, resistance, impedance, inductor, capacitors)
Key Concept	Finding complex solutions to a quadratic equation. Adding and subtracting complex numbers. Multiplying complex numbers. Dividing complex numbers. Plotting complex numbers. Finding the absolute values of complex numbers.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P45) # 1, 3, 5, 11, 13, 17, 19, 23, 24, 25, 29, 35, 37, 43, 45, 61

Week 5(9/23-9/27)

1.7 Complete the Square

Vocabulary	Completing the square
Key Concept	Making a perfect square trinomial (geometric interpretation). Solving $x^2+bx+c=0$ via completing the square. Solving $ax^2+bx+c=0$ for $a \neq 1$ via completing the square. Using completing the square in order to rewrite a quadratic function in vertex form. Using completing the square to find the maximum/minimum value of a quadratic function.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions. 6. Quiz on 1.5-1.6
Homework	(P54) # 7-15 odd, 21, 23, 27, 31, 35, 39, 41, 43, 54

1.8 Use the Quadratic Formula and the Discriminant

Vocabulary	Quadratic formula, discriminant
Key Concept	Solving equations with two real solutions Solving equations with one real solution Solving equations with imaginary solutions Using the discriminant to determine the nature of the solutions to a quadratic equation
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P62) # 9, 11, 13, 15, 23, 27, 31, 37, 39, 53, 54

Week 6 (9/30-10/4)

Activity	1. 1.1-1.8 Test 2. Review for midterm
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Week 7 (10/7-10/11)

➤ Midterm Exams

Week 8 (10/14-10/18)

1.9 Graph and Solve Quadratic Inequalities

Vocabulary	Quadratic inequality, inequality in two variables, inequality in one variable
Key Concept	Graphing a quadratic inequality. Graphing a system of quadratic inequalities. Solving a quadratic inequality using a table. Solving a quadratic inequality by graphing. Solving a quadratic inequality algebraically.
Activity	1. Go over the midterm. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P70) # 3, 4, 5, 7, 11, 17, 21, 25, 35, 47, 51, 55

Week 9 (10/21-10/25)

2.1: Use Properties of Exponents

Vocabulary	scientific notation
Key Concept	Using properties of exponents to simplify expressions. Using scientific notation.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P91) # 3-33 odd, 50

2.2: Evaluate and Graph Polynomial Functions

Vocabulary	polynomial, polynomial function, synthetic substitution, end behavior
Key Concept	Identifying polynomial functions. Evaluating polynomials via direct substitution and synthetic substitution. Identifying the end behavior of a polynomial function. Graphing a polynomial function using x- and y-intercepts and the end behavior.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P99) # 3-15 odd, 25, 27, 29-45 EOO

Week 10 (10/28-11/1)

2.3: Add, Subtract, and Multiply Polynomials

Vocabulary	like terms
Key Concept	Adding, subtracting, and multiplying polynomials vertically and horizontally special product patterns (sum and difference, square of a binomial, cube of a binomial).
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.6. Quiz on 2.1-2.2.
Homework	(P107-108) # 3-23 odd, 31, 41, 42, 49

2.4: Factor and Solve Polynomial Equations

Vocabulary	factored completely, factor by grouping, quadratic form
Key Concept	Finding a common monomial factor Factoring the sum or difference of two cubes Factoring by grouping Factoring polynomials in quadratic form Solving polynomial equations by factoring
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P114-115) # 3, 5, 7, 11-21 odd, 25, 27, 29, 33-45 odd, 53

Week 11 (11/4-11/8)

2.5: Apply the Remainder and Factor Theorems

Vocabulary	polynomial long division, synthetic division, remainder, quotient, divisor, theorem, zeros, factors
Key Concept	Using polynomial long division. Using synthetic division. Understanding and applying the remainder theorem. Understanding and applying the factor theorem.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions. 6. Quiz on 2.3-2.4.
Homework	# 3-17 odd, # 21-33 odd, 37, 41

2.6: Find Rational Zeros

Vocabulary	zero of a function, constant term, leading coefficient
Key Concept	understanding the rational zero theorem listing the possible rational zeros of a polynomial finding the zeros of a monic polynomial finding the zeros of a non-monic polynomial
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	(P132-134) # 3-19 odd, 25, 31, 45

Week 12 (11/11-11/15)

2.7: Apply the Fundamental Theorem of Algebra

Vocabulary	repeated solution, multiplicity, irrational conjugates, complex conjugates
Key Concept	understanding and applying the fundamental theorem of algebra finding the number of solutions or zeros understanding the irrational conjugates theorem understanding the complex conjugates theorem
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions. 6. Quiz on 2.5-2.6.
Homework	(P142-143) # 21, 25, 29, 35-43 odd, 59

Week 13 (11/18-11/22)

2.8: Analyze Graphs of Polynomial Functions

Vocabulary	local maximum, local minimum, domain, range
Key Concept	Using x- and y-intercepts, end behavior, and additional points to graph polynomial functions. Finding turning points (ie local maximums/minimums). Finding the zeros of a monic polynomial. Finding the zeros of a non-monic polynomial.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions. 6. Quiz on 2.7.
Homework	(P148-149) # 3-19 EOO, 35, 37, 39

Week 14 (11/25-11/29)

Activity	1. Quiz on 2.8. 2. Review for Chapter 2 Test 3. Chapter 2 Test
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Week 15 (12/2-12/6)

➤ Midterm Exams

Week 16 (12/9-12/13)

- *Go over the midterm*

3.1: Evaluate nth Roots and Use Rational Exponents

Vocabulary	nth rootm index
Key Concept	Evaluate nth roots and study rational exponents
Activity	1. Go over the midterm. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	#3-20 odd

3.2: Apply Properties of Rational Exponents

Vocabulary	simplest form, radicals
Key Concept	Simplify expressions involving rational exponents.
Activity	1. Go over the homework. 2. Explain the new definitions and the new concepts. 3. Make sure students understand the vocabularies. 4. Go over the examples on the textbook and ask the students questions. 5. Let students work on the problems and make sure they have the right concepts to solve the questions.
Homework	#3-32 odd

Week 17 (12/16-12/20)

3.3: Perform Function Operations and Composition

Vocabulary	power function composition
Key Concept	Perform operations with functions.
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.6. Quiz on 3.1-3.2.
Homework	#3-35 odd

Week 18 (12/23-12/27)

3.4: Use Inverse Functions

Vocabulary	inverse relation, inverse fuction
Key Concept	Find inverse functions
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.6. Quiz on 3.3.
Homework	#3-37 odd

Week 19 (12/30-1/3/2020)

3.5: Graph Square Root and Cube Root Functions

Vocabulary	radical function, parent function
Key Concept	Graph square root and cube root functions.
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.6. Quiz on 3.4.
Homework	#3-27 odd

3.6: Solve Radical Equations

Vocabulary	radical equation, extraneous solution
Key Concept	Solve radical equations.
Activity	<ol style="list-style-type: none">1. Go over the homework.2. Explain the new definitions and the new concepts.3. Make sure students understand the vocabularies.4. Go over the examples on the textbook and ask the students questions.5. Let students work on the problems and make sure they have the right concepts to solve the questions.6. Quiz on 3.5.
Homework	#3-31 odd

Week 20(1/6-1/10)

Activity	<ol style="list-style-type: none">1. Review for Chapter 3 test.2. Chapter 3 test.
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Week 21(1/13-1/17)

- Final exams