

Syllabus

CCPS Florida Mathematics for College Success

Course Overview

Florida Mathematics for College Success is a comprehensive review of mathematical concepts designed to prepare you for the math you'll experience in college. It includes ideas from algebra, advanced algebra, geometry, and probability and statistics and teaches them as interrelated disciplines. You've likely studied many of the topics that are presented, but some topics might be new to you.

In Florida Mathematics for College Success, you'll review operations on rational numbers and how to build and solve equations and inequalities that represent real-world problems. You will investigate different types of functions and their graphs. You'll simplify polynomial and rational expressions using properties of operations and rules of exponents, and you'll solve quadratic equations using factoring and the quadratic formula. Finally, you will apply your understanding of linear relationships to represent and interpret two-way statistical data.

Course Goals

This course will help you meet these goals:

- Use variables to represent unknown quantities.
- Use proportional relationships to solve ratio and percent problems.
- Perform operations with rational numbers.
- Convert between scientific notation and standard notation.
- Perform operations with numbers in scientific notation.
- Write and solve equations and inequalities that represent real-world situations.
- Explain each step in solving a simple equation, assuming the equation has a solution.
- Perform operations with monomial, binomial, and other polynomial expressions.
- Graph linear equations and inequalities on a coordinate plane.
- Find the slope and intercepts of a linear equation.
- Develop a linear equation by looking at its graph.
- Solve and graph a system of linear equations.
- Write and combine functions to represent situations or word problems.
- Alter a function to transform its graph.
- Write and evaluate composite functions.
- Simplify expressions using the product rule, the quotient rule, and the power rule of exponents.
- Factor algebraic expressions
- Solve quadratic expressions by factoring and applying the quadratic formula.
- Identify the intercepts and vertex of a parabola.
- Alter the coefficients of a quadratic equation to transform its graph.
- Graph general piecewise functions and absolute value functions.
- Graph square root and cube root functions.
- Interpret key features of functions such as where the function is increasing, decreasing, positive, negative, symmetries, end behavior, domain, range, and recognizing even and odd functions.
- Prove and use polynomial identities and the Binomial Theorem.
- Simplify rational and polynomial expressions.
- Calculate and interpret the rate of change of functions.
- Prove the slope criteria for parallel and perpendicular lines and apply it to solve geometric problems.
- Summarize and represent quantitative data in a two way-table.
- Interpret relative frequencies in the context of a given problem.
- Interpret the slope and the intercept of a linear model in the context of the data.
- Represent qualitative data using a scatter plot.
- Describe and fit a function to a data set.
- Assess the fit of a function by plotting and analyzing residuals.

General Skills

To participate in this course, you should be able to do the following:

- Complete basic operations with word-processing software, such as Microsoft Word or Google Docs.
- Perform online research using various search engines and library databases.
- Communicate through email and participate in discussion boards.

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Florida Mathematics for College Success is a 0.5-credit course.

Course Materials

- notebook
- calculator
- computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft Excel or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course instructor may modify the schedule to meet the specific needs of your class.

IMPORTANT NOTE: Content in **green is located at the beginning of each unit on PLATO. However, please complete these assignments in the order shown below on the Pacing Guide.**

Unit I: Rational Numbers

Summary

In this unit, you will perform operations on rational numbers. You'll use variables to represent unknown quantities and build equations and inequalities to solve word problems. You'll also use proportional relationships to solve math problems involving ratios and percentages. Finally, you'll study the standard and scientific notations for writing numbers and learn to distinguish rational and irrational numbers.

IMPORTANT NOTE: Content in green is located at the beginning of each unit on PLATO. However, please complete these assignments in the order shown below on the Pacing Guide.

Time on Task	Total Days	Content/Objective	Activity
1 day	1	Syllabus and Plato Student Orientation <ul style="list-style-type: none"> Review the Plato Student Orientation Read through Course Syllabus 	<ul style="list-style-type: none"> Course Orientation Syllabus
1 day	2	Using Variables <i>Write, read, and evaluate expressions in which letters stand for numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	3	Applications of Ratio and Percent <i>Use proportional relationships to solve ratio and percent problems.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	4	Adding Rational Numbers <i>Find the sums of rational numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	5	Subtracting Rational Numbers <i>Find the differences of rational numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	6	Multiplying Rational Numbers <i>Find the products of rational numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	7	Dividing Rational Numbers <i>Find the quotients of rational numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	8	Expressing Rational Numbers as Decimal Numbers <i>Convert a rational number to a decimal number using long division.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	9	Rational and Irrational Numbers <i>Investigate the differences between rational and irrational numbers and become acquainted with some common irrational numbers.</i>	<ul style="list-style-type: none"> Offline Assignment (Save to Digital Dropbox)
1 day	10	Scientific Notation <i>Convert between scientific notation and standard notation.</i>	<ul style="list-style-type: none"> Offline Assignment (Save to Digital Dropbox)
		Operations with Scientific Notation <i>Add, Subtract, Multiply, and Divide numbers in scientific notation</i>	<ul style="list-style-type: none"> Offline Assignment (Save to Digital Dropbox)
1 day	11	Solving Real-World Problems Involving Rational Numbers <i>Solve real-world and mathematical problems that contain positive and negative rational numbers.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	12	Building Equations to Solve Real-World Problems <i>Use variables to represent quantities in a real-world or mathematical problem and write simple equations to solve the problem.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 day	13	Building Inequalities to Solve Real-World Problems <i>Use variables to represent quantities in a real-world or mathematical problem and write simple inequalities to solve the problem.</i>	<ul style="list-style-type: none"> Online Tutorial Mastery Test
1 days	14	Unit Activity —Unit 1: Rational Numbers	Unit Activity
1 day	15	Posttest—Unit 1	Unit Assessment

Unit 2: Expressions

Summary

In this unit, you will perform addition, subtraction, multiplication, and division with monomial and binomial expressions.

IMPORTANT NOTE: Content in **green** is located at the beginning of this unit on PLATO. However, please complete this assignment in the order shown below on the Pacing Guide.

Time on Task	Total Days	Content/Objective	Activity
1 day	16	Adding Monomials <i>Add monomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	17	Subtracting Monomials <i>Subtract monomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	18	Multiplying Monomials <i>Multiply monomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	19	Dividing Monomials <i>Divide monomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	20	Adding Binomials and Monomials <i>Add binomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	21	Subtracting Binomials and Monomials <i>Subtract binomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	22	Multiplying Monomials and Binomials <i>Multiply binomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
		Multiply Binomials and Polynomials <i>Multiply binomials with binomials and binomials with trinomials</i>	<ul style="list-style-type: none"> • Offline Assignment (Save to Digital Dropbox)
1 day	23	Dividing Binomials by Monomials <i>Divide binomials.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	24	Unit Activity – Unit 2: Expressions	Unit Activity
1 day	25	Posttest—Unit 2	Unit Assessment

Unit 3: Equations, Inequalities, and Graphs

Summary

In this unit, you will solve linear equations and inequalities in one variable. You'll derive linear equations by examining their graphs and interpret linear graphs to solve word problems. You'll also study systems of linear equations and linear inequalities and use them to represent and solve word problems that involve two variables.

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Time on Task	Total Days	Content/Objective	Activity
1 day	27	Linear Equations in 1 Variable: Isolating the Variable <i>Solve more-difficult linear equations by isolating the variable.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	28	Explain Steps in Solving Equations <i>Use properties to explain each step in solving a simple equation.</i>	<ul style="list-style-type: none"> • Offline Assignment (Save to Digital Dropbox)
1 day	29	Literal Equations <i>Write literal equations to solve math problems.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	30	Linear Inequalities in 1 Variable, Part 1 <i>Solve linear inequalities using addition and subtraction.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	31	Linear Inequalities in 1 Variable, Part 2 <i>Solve linear inequalities for which multiplication and division are required.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	32	Ordered Pairs as Solutions of Linear Equations <i>Determine whether an ordered pair is a solution of a linear equation.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	33	Equations, Graphs, Slopes, and y-Intercepts <i>Use the slope and intercept of linear functions to write an equation from a graph, and draw a graph from an equation.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	34	Interpreting Graphs to Solve Problems <i>Solve problems or answer questions based on linear graphs that represent real-world situations.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	35	Solving and Graphing Systems of Equations <i>Solve a system of linear equations.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	36	Solving Linear Systems of Equations: Addition <i>Solve a system of equations by adding or subtracting.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	37	Solving Problems with Linear Systems <i>Solve word problems using a system of two linear equations or inequalities.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	38	Unit Activity – Unit 3: Equations, Inequalities, and Graphs	Unit Activity
1 day	39	Posttest—Unit 3	Unit Assessment

Unit 4: Functions, Rules of Exponents, and Radicals

Summary

In this unit, you will focus on functions and exponents in algebraic expressions. You'll begin by studying function notation and how to write a function to represent a real-world situation. You'll also combine different types of functions and graph transformations of functions. Near the end of the unit, you'll simplify rational expressions using the product rule, the quotient rule, and the power rule. Finally, you'll apply properties of exponents and radicals to simplify expressions.

Time on Task	Total Days	Content/Objective	Activity
1 day	40	Function Notation <i>Study and use function notation.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	41	Writing and Combining Functions <i>Write normal functions and recursive functions, and also combine functions, to represent situations.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	42	Translations and Transformations <i>Alter a function by translating and transforming the graph.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	43	Composite Functions <i>Find composite functions, their values, and the simpler functions that make up composite functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	44	Integer Exponents and the Product Rule <i>Simplify a product using the product rule for exponents.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	45	Integer Exponents and the Quotient Rule <i>Divide exponential forms with the same base using the quotient rule for exponents.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	46	Integer Exponents and the Power Rule, Part 1 <i>Use the power rule for exponents to simplify an expression with exponents raised to a power.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	47	Integer Exponents and the Power Rule, Part 2 <i>Use the power rule for exponents to simplify an expression with exponents raised to a power.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	48	Rational Exponents <i>Study and apply properties of exponents to rational exponents.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	49	Review: Exponents and Radicals <i>Review the rules of exponents and radicals.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	50	Unit Activity – Unit 4: Functions, Rules of Exponents, and Radicals	Unit Activity
1 day	51	Posttest—Unit 4	Unit Assessment

Unit 5: Factoring and Quadratic Equations

Summary

In this unit, you will factor polynomials and common algebraic expressions. You'll use factoring and the quadratic formula to solve word problems involving quadratic equations.

Time on Task	Total Days	Content/Objective	Activity
1 day	52	Monomial Factors of Polynomials <i>Factor a polynomial that has monomial factors.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	53	Factoring Algebraic Expressions <i>Factor common algebraic expressions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	54	Factoring the Difference of 2 Squares <i>Factor a difference of squares.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	55	Solving Simple Quadratic Equations <i>Find the solution for quadratic equations of the form $x^2 + bx + c = 0$.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	56	Solving Quadratic Equations by Factoring, Part 3 <i>Find the solution set of quadratic equations by factoring.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	57	Quadratic Formula <i>Use the quadratic formula to find a solution set for a quadratic equation.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1.5 days	58/59	Solving Problems with Quadratic Equations <i>Solve word problems that can be represented by quadratic equations.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test • Offline Assignment (Save to Digital Dropbox)
0.5 days	59	Unit Activity—Unit 5: Factoring and Quadratic Equations	Unit Activity
1 day	60	Posttest—Unit 5	Unit Assessment

Unit 6: Graphing with Functions

Summary

In this unit, you will review how to solve linear equations and inequalities, including those that involve absolute value. Then you'll move on to explore graphs of functions. You'll study the attributes of a parabola: its intercepts, vertex, and coefficient. You'll also graph piecewise functions and absolute value functions. Finally, you'll study and apply the properties of exponential functions.

IMPORTANT NOTE: Content in **green** is located at the **beginning** of this unit on PLATO. However, please complete this assignment in the order shown below on the Pacing Guide.

Time on Task	Total Days	Content/Objective	Activity
1 day	61	Review: Equations and Inequalities <i>Review how to solve equations and inequalities.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	62	Parabola and Its Intercepts <i>Find the x- and y-intercepts of a parabola.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	63	Parabola and Its Vertex <i>Find the vertex of a parabola.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	64	Graphing Piecewise Functions <i>Graph greatest integer and general piecewise functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	65	Graphing Absolute Value Functions <i>Graph absolute value functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	66	Key Features of Functions <i>Identify and interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features</i>	<ul style="list-style-type: none"> • Offline Assignment (Save to Digital Dropbox)
1 day	67	Properties of Exponential Functions <i>Study the properties of exponential functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	68	Unit Activity—Unit 6: Graphing with Functions	Unit Activity
1 day	69	Posttest—Unit 6	Unit Assessment

Unit 7: Polynomial, Rational, and Radical Relationships

Summary

In this unit, you will simplify polynomial and rational expressions. You'll investigate and apply polynomial identities and the Binomial Theorem and solve rational and radical equations. You'll also examine graphs of polynomial and rational functions, and you'll calculate the rate of change of functions over specified intervals. Finally, you'll review how to create, rearrange, and solve a variety of equations to find the value of an unknown quantity or variable.

IMPORTANT NOTE: Content in **green** is located at the **beginning** of this unit on PLATO. However, **please complete this assignment in the order shown below on the Pacing Guide.**

Time on Task	Total Days	Content/Objective	Activity
1 day	70	Simplifying Rational Expressions <i>Simplify rational expressions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	71	Simplifying Polynomial Expressions <i>Simplify polynomial expressions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	72	Polynomial Identities and the Binomial Theorem <i>Prove and use polynomial identities and the Binomial Theorem.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	73	Review: Rational Expressions <i>Review how to solve rational expressions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Online Application • Mastery Test
1 day	74	Other Types of Equations <i>Solve other types of equations, including those involving radicals and power functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	75	Graphing Polynomial Functions <i>Examine graphs of polynomial functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	76	Rational Functions <i>Investigate rational functions.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	77	Graphing Square Root and Cube Root Functions <i>Graph and transform square root and cube root functions.</i>	<ul style="list-style-type: none"> • Offline Assignment (Save to Digital Dropbox)
1 day	78	Average Rate of Change <i>Calculate and interpret the rate of change of functions presented in different formats.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	79	Creating and Solving Equations <i>Create equations to represent situations and solve them to work out problems in context.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	80	Rewriting Formulas <i>Rewrite equations to solve for a single variable.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	81	Unit Activity—Unit 7: Polynomial, Rational, and Radical Relationships	Unit Activity
1 day	82	Posttest—Unit 7	Unit Assessment

Unit 8: Relating Data Sets

Summary

In this unit, you will explore how linear models can be used to relate two data sets. You'll begin by investigating the slope criteria for parallel and perpendicular lines and use them to solve geometric problems. You'll also interpret the slope and intercept of a linear model that describes statistical data. You'll represent quantitative data using scatter plots and solve word problems in the context of the data. Finally, you'll analyze and summarize categorical data from tables.

Time on Task	Total Days	Content/Objective	Activity
1 day	83	Slope Criteria for Parallel and Perpendicular Lines <i>Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	84	Relating Categorical Data <i>Summarize data for two categories in two-way frequency tables and interpret their relative frequencies in the context of the data.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	85	Interpreting Data as a Line <i>Interpret the slope and the intercept of a linear model in the context of the data.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	86	Relating Quantitative Data <i>Represent data of two quantitative variables using a scatter plot, describe and fit a function to the data, and solve problems in the context of the data.</i>	<ul style="list-style-type: none"> • Online Tutorial • Mastery Test
1 day	87	Unit Activity—Unit 8: Relating Data Sets	Unit Activity
1 day	88	Posttest—Unit 8	Unit Assessment
1 day	89	Semester Review	Review for Final
1 day	90	End-of-Semester Test	FINAL EXAM