

Pre-Calculus 11

Type: Online

Course Description:

Pre-Calculus Math 11 is intended to help students continue on the path to potential STEM-based post secondary studies. Specifically, the course is an exploration of advanced functions and equations including polynomials, quadratics, rationals, trigonometry and more, as well as an applied look at finances. Broadly speaking, Pre-Calculus 11 is focused on the continued development of algebraic and critical thinking, problem solving and the application of mathematics in real-life situations.

StudyForge Pre-Calculus Math 11 is intentionally designed for student success, featuring elements such as:

- Video, Audio and Hands-on instruction through videos and interactives
- Practice questions with detailed solutions for self-assessment
- A student notebook that accompanies the instruction, to enhance engagement with course material
- Summative assessments for each module - randomized to allow retests for mastery
- A customized dashboard to let you know which students are most needing your help
- A variety of Inquiry-based projects
- Solution Files & Answer Keys
- And more.

Pre-Calculus 11 requires that students have completed the prerequisite course: Foundations of Math and Pre-Calculus 10.

Major Units and Topics:

- Polynomials
- Quadratic Functions
- Quadratic Equations
- Rational Equations
- Radical Functions
- Trigonometry
- Financial Literacy



Assessments:

- Video Note Package
- Projects
- Practice Questions
- Assignments
- Chapter Tests

Student Requirements:

- Students will need access to a computer (with internet, speakers, mic and camera), printer, pencil, papers and a scientific calculator.
- A graphing calculator is also permitted and recommended.
 - (Note that there is a built-in graphing calculator in all practice questions.)

Learning Standards Overview:

Content <i>Students are expected to know the following:</i>	Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7
Real Number							
Classification					✓		
Powers							
Positive and negative rational exponents					✓		
Exponent laws					✓		
Evaluation using order of operations					✓		



Numerical and variables bases					✓		
Radical							
Simplifying radicals					✓		
Ordering a set of irrational numbers					✓		
Performing operations with radicals					✓		
Solving simple (one radical only) equations algebraically and graphically					✓		
Identifying domain restrictions and extraneous roots of radical equations					✓		
Factoring							
Greatest common factor of a polynomial	✓						
Trinomials of the form	✓						
Difference of squares of the form	✓						
May extend to ,	✓						
Rational							
Simplifying and applying operations to rational expressions				✓			
Identifying non-permissible values				✓			
Solving equations and identifying any extraneous roots				✓			
Quadratic							



Identifying characteristics of graphs (including domain and range, intercepts, vertex, symmetry), multiple forms, function notation, extrema		✓					
Exploring transformations		✓					
Solving equations (e.g., factoring, quadratic formula, completing the square, graphing, square root method)			✓				
Connecting equation-solving strategies			✓				
Connecting equations with functions			✓				
Solving problems in context		✓	✓				
Inequalities							
Single variable (e.g.,)			✓				
Domain and range restrictions from problems in situational contexts			✓				
Sign analysis: identifying intervals where a function is positive, negative, or zero			✓				
Symbolic notation for inequality statements, including interval notation			✓				
Trigonometry							
Use of sine and cosine laws to solve non-right triangles, including ambiguous cases						✓	
Contextual and non-contextual problems						✓	



Angles in standard position: degrees; special angles, as connected with the 30-60-90 and 45-45-90 triangles						✓	
Unit circle						✓	
Reference and coterminal angles						✓	
Terminal arm						✓	
Trigonometric ratios						✓	
Simple Trigonometric Equations						✓	
Financial Literacy							
Compound Interest							✓
Introduction to investments/loans with regular payments, using technology							✓
Buy/lease							✓

