StudyForge
DIGITAL CURRICULUM

Pre-Calculus 12

Type: Online

Course Description:

Are you searching for a Pre-Calculus 12 curriculum that will help your students master its topics so that if and when they hit Calculus they can not only survive but even thrive? And all the while still enjoying the course itself? Your search is over.

StudyForge proudly presents: Pre-Calculus 12.

Pre-Calculus 12 is the culmination of a students' high school mathematical journey, as they learn the fundamentals of advanced functions, logarithms, trigonometric identities and more. The course thoroughly prepares students for the oncoming rigor of Calculus, yet does so in a manner that is compelling and rewarding, and fosters an appreciation for the real-life applications of each topic explored, as well as for math itself.

With auditory, visual, and hands-on components throughout, this is truly a course that suits all learning styles. The lessons are engaging, interactive and student-friendly, with interactive videos that allow students to pause and rewind at any point and go at their own speed, as well as fun, interactive applets and dynamic graphs scattered throughout that enhance student understanding.

Each video is accompanied by a student-friendly note package that allows students to take notes to whatever level of detail they like. There are also an abundance of practice questions for students to internalize the material, with full, detailed solutions for each, as well as a comprehensive review assignment and practice test. Furthermore, with randomized question banks, students can redo every quiz and test in the course to help them master the material and perform their very best.

This course is a prerequisite for students who might take Calculus in the future, whether in high school (Calculus 12 or AP Calculus) or in post-secondary.

Major Units and Topics:

- Transformations
- Function Operations
- Exponential and Logarithmic Functions
- Sequences & Series
- Polynomial and Rational Functions
- Trigonometric Functions and Identities

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 *Students are expected to know the following:*	**Ch 1**	**Ch 2**	**Ch 3**	**Ch 4**	**Ch 5**	**Ch 6**	**Ch 7**	**Ch 8**
Transformations								
Graphs and equations of parent functions and relations (e.g., absolute value, radical, reciprocal, conics, exponential, logarithmic, trigonometric)	✔							✔
Vertical and horizontal translations, stretches, and reflections	✔							✔
Inverses: graphs and equations	✔							✔

Extension: recognizing composed functions (e.g., y=); operations on functions		✔						
Exponential								
Graphing, including transformations			✔					
Solving equations with same base and with different bases, including base e			✔					
Solving problems in situational contexts			✔					
Geometric								
Common ratio, first term, general term				✔				
Geometric sequences connecting to exponential functions				✔				
Infinite geometric series				✔				
Sigma notation				✔				
Logarithms								
Applying laws of logarithms			✔					
Evaluating with different bases			✔					
Using common and natural logarithms			✔					
Exploring inverse of exponential			✔					
Graphing, including transformations			✔					

Solving equations with same base and with different bases			✔					
Solving problems in situational contexts			✔					
Polynomial								
Factoring, including the factor theorem and the remainder theorem				✔				
Graphing and the characteristics of a graph (e.g., degree, extrema, zeros, end-behaviour)				✔				
Solving equations algebraically and graphically				✔				
Rational								
Characteristics of graphs, including asymptotes, intercepts, point discontinuities, domain, end-behaviour				✔				
Trigonometry								
Examining angles in standard position in both radians and degrees					✔			
Exploring unit circle, reference and coterminal angles, special angles					✔			
Graphing primary trigonometric functions, including transformations and characteristics					✔			
Solving first- and second-degree equations (over restricted domains and all real numbers)						✔		

Solving problems in situational contexts						✔		
Using identities to reduce complexity in expressions and solve equations (e.g., Pythagorean, quotient, double angle, reciprocal, sum and difference)						✔		