

AP Precalculus

MM www.xumath.org
United States

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TO REGISTER: <https://xumath.org>

WHEN, WHERE, HOW MUCH?

Term: June 9– Aug. 15, 2026

In-Person and Live Zoom Lecture: Tue. & Sat. 7-9pm CT

Homework Solving Video: Available on Canvas on Fri. & Tue.

In-Person Address: PolyEducation, 4116 W Spring Creek Parkway, Suite C500,
Plano, TX 75024

Format:

- 20 2-hour lectures + 20 1-hour homework solving videos
- 20 homework assignments (to be graded) + 2 exams (to be graded)
- (1) In-person and live zoom hybrid; (2) Customized lecture notes on Canvas; (3) [Videos for making up missed classes](#); (4) [Cash awards](#) for effort and performance in graded quizzes, homework and exams.

Tuition: \$960 (if register and pay by March 31), \$990 (after March 31)

WHO TEACHES?

Dr. Sheng Xu:

- Recommended by K-12 students and parents in anonymous testimonials (on <https://xumath.org>)
- Math professor at Southern Methodist University with Teaching Excellence Award; 19 years and 17 math courses teaching experience; Author of the undergraduate textbook: *Introduction To Scientific Computing with Matlab and Python Tutorials* (on amazon.com); Ph.D. from Cornell and post-doc at Princeton and Cornell

COURSE INFO

Syllabus, Sample Notes and Videos: <https://xumath.org>

Required Textbook:

- [1] Customized notes by Prof. Xu (available before each class)
- [1] Ron Larson et al., *Precalculus With Limits: A Graphing Approach (Advanced Placement Version)*, 4th Edition, ISBN 0-6183-9480-X

References:

- [2] E.W. Swokowski & J.A. Cole, *Precalculus Functions and Graphs*, Edition 12e, 0-8400-6892-1
- [3] R. Rusczyk, *Art of Problem Solving: Precalculus*, 2nd Edition
- [4] R. Rusczyk and M. Crawford, *Art of Problem Solving: Intermediate Algebra*

TOPICS

Note: The lectures do not necessary follow the order in the table.

	Main Topics
1	Coordinate systems; Graphs of equations
2	Functions: definition, graphs, operations
3	Quadratic functions; Polynomial functions; Polynomial Divisions
4	Zeros of polynomials; Rational Functions
5	Inverse function; Exponential and logarithmic functions; Laws of exponents and logarithms
6	Exponential and logarithmic equations; Gaussian elimination for systems of linear equations
7	Systems of nonlinear equations; Partial fractions
8	Angles; Trigonometric functions of angles
9	Trigonometric functions: graphs and properties
10	Inverse trigonometric functions; Application of trigonometric functions
11	Trigonometric identities and equations
12	Trigonometric formulas and applications: Addition, subtraction
13	Trigonometric formulas: multiple-angle; product-to-sum; sum-to-product
14	Laws of sines and cosines
15	Vectors; Dot product; De Moivre's theorem
16	Parabolas; Ellipses; Hyperbolas
17	Plane curves; Parametric equations; Polar coordinates
18	Polar equations of conics
19	Series; Mathematical induction
20	Binomial theorem; Permutations and combinations