

## 2025 AP Precalculus Summer Assignment

Dear Future AP Precalculus Students,

You've chosen to take on AP Precalculus next year, how exciting! I look forward to teaching you all things precalculus!! AP Precalculus varies from Regular Precalculus in many ways. I've included a copy of the "Should you take AP or Regular Precal?" below for your reference. I'd like to reiterate that AP Precalculus is a rigorous course and is designed for motivated students. You will be expected to work hard and ask questions in order to be successful. That begins with this summer assignment.

### Should you take AP or Regular Precalculus?

#### AP Precal:

AP Precalculus (formerly Advanced Precalculus) is a rigorous course designed for highly motivated math students. The pace and intensity are consistent with previous advanced math courses.

**Prerequisites:** Advanced Geometry and Advanced Algebra 2 (with satisfactory grades- generally A/B avg)

**2 Dual Enrollment Options:** Fall Term- MTH 112 (Precal Alg.); Spring Term-MTH 113 (Precal Trig.)

You **should** take AP Precal if:

- you plan to take AP Calculus in high school
- your degree requires a math higher than MTH 112
- you're working towards an Honors Diploma
- you're interested in Mu Alpha Theta (math honor society)
- you just love math!

There will be a summer assignment (Algebra Reviews). All students will have to take the AP Exam this year!

#### Regular Precal:

**Going to college?** You need Precalculus! Usually, this course is taken by students on the General Pathway their senior year.

(Geometry → Algebra 1 → Algebra 2 → Precalculus)

**1 Dual Enrollment Option:** MTH 112 (Precal Algebra) in the Spring. For many, this option provides a pathway where no additional math courses are required after high school.

Advanced students may drop down to Regular Precal if they struggled with Advanced Algebra 2 and if they know they won't need Calculus later on.

**Notice:** This course does **not** count towards an Honors Diploma nor Mu Alpha Theta requirements.

**Still have questions?** Please feel free to contact your Algebra 2 teacher for their recommendation or Ms. Counce if you have any questions specifically about AP or Reg. Precal!

Below are the general topics in which we will be covering in AP Precalculus. My hope is that some of these topics sound familiar to you. THEY SHOULD! 😊 Mathematics is a subject that continuously builds upon itself. Precalculus is the bridge between Algebra and Calculus and you'll realize very soon how important all of your prior math knowledge is.

- Polynomial Functions
- Rational Functions
- Exponential Functions
- Logarithmic Functions
- Trigonometric Functions
- Polar Functions
- Vectors
- Matrices & Systems of Equations

**\*\*At the end of this document you will find a copy of the "Course at a Glance" page that goes into a little more detail of each topic.**

I am very excited about a new year of AP Precalculus and look forward to helping you achieve your goal of mastering the content. If you have any questions about the review materials, please email me anytime. If you need any specific help on any of the topics from the summer assignment I will be at the school **most of June and July** as I work the Summer School program at HHS. I will **not** be there 7/14-7/17. The summer review assignments will open on June 9th, in Khan Academy. These reviews should be completed before the first full day of school on August 10th, 2025.

## Summer Assignments for AP Precalculus

<input type="checkbox"/> <b>Step #1:</b> Join AP Precalculus Google Classroom <b>Code: dw7c2jpx</b>  <b>Due: May 2025</b>	<p>Make sure you have joined our google classroom for the summer, and that your <b>notifications</b> are turned on for messages.</p> <p>I will post a reminder that these assignments open mid June, then post again closer to the due date of Sunday, August 10th.</p> <p>Link to join Google Classroom:  <a href="https://classroom.google.com/c/NzgZnzl1NDE2NTcx?cjc=dw7c2jpx">https://classroom.google.com/c/NzgZnzl1NDE2NTcx?cjc=dw7c2jpx</a></p>
<input type="checkbox"/> <b>Step #2:</b> Join Khan Academy Review Course "2025-2026 AP Precalculus Summer Assignment"  <b>Code: 94A2W9H4</b>  <b>Due: June 9, 2025</b>	<p>Join the Khan Academy Summer Assignment course for review assignments. You should use your school gmail info to either sign-in, or create an account.</p> <ul style="list-style-type: none"> <li>If you already have a Khan account:  Link: <a href="https://www.khanacademy.org/join/94A2W9H4">https://www.khanacademy.org/join/94A2W9H4</a></li> <li>If you need to create a Khan account, follow the step below: <ol style="list-style-type: none"> <li>Make sure you are signed into your school gmail account.</li> <li>Go to <a href="https://www.khanacademy.org/join">khanacademy.org/join</a></li> <li>Enter this class code (Code: <b>94A2W9H4</b>), and press Continue, then Join.</li> <li>If you do not have an account, press Create a new account, Enter your date of birth, and sign up using your Google school account.</li> <li>Enter your grade level and course.</li> </ol> </li> </ul>
<input type="checkbox"/> <b>#3 Actual Assignments:</b> Khan Reviews - these will be assigned to complete.  <b>Opens: June 9th, 2025</b> <b>Due: August 10th, 2025</b>  There are <b>13 assignments</b> for you to complete. The title, # of questions, and approximate times are listed to the right. Please do NOT wait until the week before school begins to start on these assignments!	<p>Get Ready for...</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Polynomial Operations &amp; Complex Numbers (11 questions; 11-22 minutes)</li> <li><input type="checkbox"/> Equations (16 questions; 16-32 minutes)</li> <li><input type="checkbox"/> Transformations &amp; Modeling w/ Functions (22 questions; 22-44 minutes)</li> <li><input type="checkbox"/> Exponential &amp; Logarithmic Relationships (17 questions; 17-34 minutes)</li> <li><input type="checkbox"/> Trigonometry (yes, another one) (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Rational Functions (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Complex Numbers (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Polynomials (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Composite &amp; Inverse Functions (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Trigonometry (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Vectors &amp; Matrices (10 questions; 9-18 minutes)</li> <li><input type="checkbox"/> Series (11 questions; 11-22 minutes)</li> <li><input type="checkbox"/> Conic Sections (10 questions; 9-18 minutes)</li> </ul>
<b>Instructions for Reviews</b>	<ul style="list-style-type: none"> <li><u>Each review assignment is for a completion grade, as long as you score 60% or higher.</u> You should be able to see step-by-step solutions after you submit the reviews for any problems that are missed.</li> <li>To locate these reviews in Khan (<i>on/after June 9th</i>), click on your name (top right corner-after you've logged in), select <i>Learner Home</i> and you should see them listed in the <b>Active</b> category under <b>My assignments</b>.</li> <li>You are only expected to earn 60%+ to get an idea of any specific areas in which you may need additional practice. If you score below 60%, you should review some of the lessons for those topics.</li> </ul>

The Khan "End of Unit" Reviews will cover the topics you should have learned in prior math courses. Please review any problems you miss using the built in help features that Khan provides for each problem (video explanations and a step-by-step set of hints). You are more than welcome to do any of the additional practice sets in the Khan course, if you need extra practice, but first prioritize completing the reviews. These reviews are considered complete once you've earned 60%+ on each assignment. These assignments are meant to help ensure you are ready for AP Precalculus when we start school in August. You **must complete** the assignments in order to take AP Precalculus next year at HHS.

## Dual Enrollment Options:

AP Precalculus is an exciting and rigorous course that is equivalent to a college level MTH 112- Precalculus Algebra and MTH 113- Precalculus Trigonometry. You will need to make a decision SOON if you plan to earn dual enrollment credit, in the Fall for MTH 112. Below is a summary:

ACT Math Score 20+  
OR  
Take the Placement Test  
@ Calhoun Score of 267+

# DUAL ENROLLMENT MTH 112/113

AP Precal- MTH 112 in the Fall ; MTH 113 in the Spring  
Regular Precal- MTH 112 (only) in the Spring

Approximately  
\$500 per class  
Sometimes they offer  
scholarships/  
BOGO deals!

### AP PRECAL:

AP Precal students **Should** Consider Dual Enrollment if...

- They are a senior in AP Precal
- Their degree does NOT require Calculus

Current juniors can take AP CSP or AP Stats next year.

AP Precal students **Should NOT** Consider Dual Enrollment if...

- Their degree **REQUIRES** Calculus
- Plan to take AP Calculus next year for degree credit

### REGULAR PRECAL:

Regular Precal students **Should** Consider Dual Enrollment if...

- They plan to go to college

Current juniors can take AP CSP or AP Stats next year. They will not be prepared for AP Calculus coming out of Regular Precal (missing the MTH 113 content).

Regular Precal students **Should NOT** Consider Dual Enrollment if...

- They do not plan to go to college

For many students, this option may provide a pathway where no additional math courses will be required after leaving high school.

*Start Researching your Degree Today!!*

**Expectations for Next Year:** We will cover new topics almost every day, and you will see a variety of concepts that are completely new compared to past mathematics courses. You will have approximately 30 minutes of homework assignments every day that cover the key concepts that you must master to be successful in this course. We will also have study sessions outside of class during the year that you must attend in order to be prepared for the AP Precalculus Exam. The formula for success in this course is fairly simple - you must (1) be willing to understand mathematical concepts at a deeper level, you must (2) have a great attitude about learning new and exciting concepts, and you must (3) be prepared to work hard throughout the year to be successful.

In order to be successful in passing the AP Precalculus Exam, students must take the summer assignment seriously, and be ready on day one to move forward. **Reviewing these skills from previous math courses can also help many students improve their Math ACT scores, which will be given in the spring of this year at HHS!** I am looking forward to guiding each one of you through a successful year of AP Precalculus. Please do not hesitate to email me with any questions.

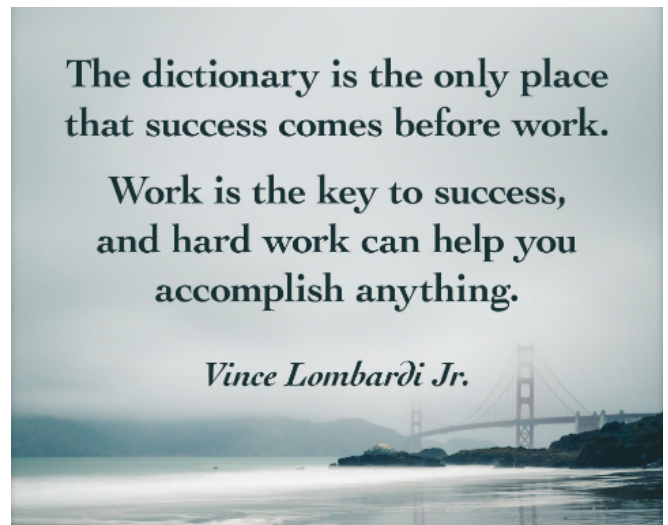
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The dictionary is the only place  
that success comes before work.

Work is the key to success,  
and hard work can help you  
accomplish anything.

Vince Lombardi Jr.





## AP Precalculus Topics (Unit 4 is not Assessed on the AP Precalculus Exam):

# Course at a Glance

### Unit 1 Polynomial and Rational Functions 6–6.5 weeks

1.1	Change in Tandem
1.2	Rates of Change
1.3	Rates of Change in Linear and Quadratic Functions
1.4	Polynomial Functions and Rates of Change
1.5	Polynomial Functions and Complex Zeros
1.6	Polynomial Functions and End Behavior
1.7	Rational Functions and End Behavior
1.8	Rational Functions and Zeros
1.9	Rational Functions and Vertical Asymptotes
1.10	Rational Functions and Holes
1.11	Equivalent Representations of Polynomial and Rational Expressions
1.12	Transformations of Functions
1.13	Function Model Selection and Assumption Articulation
1.14	Function Model Construction and Application

### Unit 3 Trigonometric and Polar Functions 7–7.5 weeks

3.1	Periodic Phenomena
3.2	Sine, Cosine, and Tangent
3.3	Sine and Cosine Function Values
3.4	Sine and Cosine Function Graphs
3.5	Sinusoidal Functions
3.6	Sinusoidal Function Transformations
3.7	Sinusoidal Function Context and Data Modeling
3.8	The Tangent Function
3.9	Inverse Trigonometric Functions
3.10	Trigonometric Equations and Inequalities
3.11	The Secant, Cosecant, and Cotangent Functions
3.12	Equivalent Representations of Trigonometric Functions
3.13	Trigonometry and Polar Coordinates
3.14	Polar Function Graphs
3.15	Rates of Change in Polar Functions

### Unit 2 Exponential and Logarithmic Functions 6–6.5 weeks

2.1	Change in Arithmetic and Geometric Sequences
2.2	Change in Linear and Exponential Functions
2.3	Exponential Functions
2.4	Exponential Function Manipulation
2.5	Exponential Function Context and Data Modeling
2.6	Competing Function Model Validation
2.7	Composition of Functions
2.8	Inverse Functions
2.9	Logarithmic Expressions
2.10	Inverses of Exponential Functions
2.11	Logarithmic Functions
2.12	Logarithmic Function Manipulation
2.13	Exponential and Logarithmic Equations and Inequalities
2.14	Logarithmic Function Context and Data Modeling
2.15	Semi-log Plots

### Unit 4 Functions Involving Parameters, Vectors, and Matrices 7–7.5 weeks

4.1	Parametric Functions
4.2	Parametric Functions Modeling Planar Motion
4.3	Parametric Functions and Rates of Change
4.4	Parametrically Defined Circles and Lines
4.5	Implicitly Defined Functions
4.6	Conic Sections
4.7	Parametrization of Implicitly Defined Functions
4.8	Vectors
4.9	Vector-Valued Functions
4.10	Matrices
4.11	The Inverse and Determinant of a Matrix
4.12	Linear Transformations and Matrices
4.13	Matrices as Functions
4.14	Matrices Modeling Contexts