

# 05 College Math Placement Test Prep

Content Area: **Math**  
Course(s):  
Time Period: **Full Year**  
Length: **2-3 weeks**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

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Senior Math Analysis CP is designed for seniors who will not major in mathematics or science in college. The main course objective is to strengthen and extend the concepts of algebra, geometry, and problem solving, including modeling and reasoning. The course integrates ideas of functions and trigonometry with explorations in world-life applications. Additionally, students are provided SAT review and exposure to college placement exam experiences.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

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Objectives: This unit addresses the general purpose, process, and content of many college math placement tests. Students will learn how and why colleges use placement tests. Students will be familiarized with the variety of content common to many placement tests including the various Accuplacer tests and content available from local community colleges. Students are also encouraged to seek out and utilize any content available from their perspective colleges.

Essential Questions:

- How and why do colleges use placement tests?
- What content should you expect on a college math placement test?

Enduring Understandings:

- Placements tests are used by colleges to ensure that students are prepared for and placed in an appropriate level math course.
- The content of a placement test may vary from school to school, or program to program, but generally covers standards based math content.
- A students performance on a placement test may require that they take a non-credit remediation course (it is our goal to aviod this)

## **CONTENT AREA STANDARDS**

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| MA.F-BF.A.1  | Write a function that describes a relationship between two quantities. |
| MA.F-BF.A.1b | Combine standard function types using arithmetic operations.           |

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| MA.F-IF.B.4   | For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.   |
| MA.F-IF.B.5   | Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.   |
| MA.K-12.1     | Make sense of problems and persevere in solving them.  |
| MA.K-12.2     | Reason abstractly and quantitatively.  |
| MA.K-12.4     | Model with mathematics.  |
| MA.K-12.5     | Use appropriate tools strategically.   |
| MA.N-CN.A.1   | Know there is a complex number $i$ such that $i^2 = -1$ , and every complex number has the form $a + bi$ with $a$ and $b$ real.  |
| MA.N-RN.A.2   | Rewrite expressions involving radicals and rational exponents using the properties of exponents.   |
| MA.A-REI.A.2  | Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.   |
| MA.A-REI.D.11 | Explain why the $x$ -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. |
| MA.A-SSE.B.3  | Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.   |
| MA.A-SSE.B.3c | Use the properties of exponents to transform expressions for exponential functions.  |

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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| CS.K-12.3.a   | Identify complex, interdisciplinary, real-world problems that can be solved computationally.  |
| CS.K-12.3.b   | Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.   |
| CS.K-12.3.c   | Evaluate whether it is appropriate and feasible to solve a problem computationally.   |
| LA.RST.9-10.3 | Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text. |
| LA.RST.9-10.5 | Analyze the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).  |
| WRK.K-12.P.5  | Utilize critical thinking to make sense of problems and persevere in solving them.  |

## **STUDENT LEARNING TARGETS**

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### **Declarative Knowledge**

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Students will understand that:

- Not every student will have to take a college placement, however preparing for one still enhances your college and career readiness.
- Placement tests differ from entrance exams, and are designed to help students success in their courses.
- different schools and different programs may focus on different levels of mathematics understanding.
- the results of a placement test may show that remediation is necessary.

## **Procedural Knowledge**

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Students will be able to:

- recognize the content of a sample placement test
- analyze the results of their sample placement test(s) to identify areas of strength and/or weakness
- utilize appropriate resources to practice and improve declarative knowledge and procedural skills for high school level mathematics

## **EVIDENCE OF LEARNING**

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### **Formative Assessments**

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- Student feedback/questioning/observation
- Exit Ticket
- Error analysis
- Specific skill assessment/questions
- Survey/polling
- Reflection questions
- Scored/evaluated class work or homework
- Task completion

### **Summative Assessments**

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Lesson Quizzes

Unit Test

Performance Tasks

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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[College Board Official Accuplacer website](#)

[CCM Placement Test website](#)

[William Patterson University Placement test information](#)

## **INTERDISCIPLINARY CONNECTIONS**

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Interdisciplinary connections are frequently addressed through modeling and application problems whereby students solve and analyze situations taken from business, physics, engineering, biology, statistics, geography, and numerous other fields. Examples can be found in topic specific textbook problems and digital resources.

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.