

HS Mathematical Analysis Standards and Benchmarks Confirmed

Standard 1: Use a variety of strategies in the problem-solving process

Benchmarks:

- 1.1 Use a variety of strategies to understand new mathematical content and to develop more efficient solution methods or problem extensions
- 1.2 Understand the components of mathematical modeling
- 1.3 Construct algorithms for multi-step and non-routine problems
- 1.4 Understand connections between representations and corresponding procedures of the same problem situation or mathematical concept
- 1.5 Use a geometric representation to formulate a problem
- 1.6 Use organizational structures in probability

Standard 2: Understand and apply basic and advanced properties of the concepts of numbers

Benchmarks:

- 2.1 Extend the concept of number to include exponents and logarithms
- 2.2 Extend the concept of number to include complex numbers

Standard 3: Use basic and advanced procedures while performing the processes of computation

Benchmarks:

- 3.1 Use vector arithmetic in two and three dimensions
- 3.2 Calculate distances in vector questions
- 3.3 Find intersections of vectors

Standard 5: Understand and apply basic and advanced properties of the concepts of geometry

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Benchmarks:

- 5.1 Understand transformations of the graphical representations of functions
- 5.2 Understand the geometry of two and three dimensional vectors
- 5.3 Use vectors to solve problems involving points, lines and planes and to find associated angles, distances and areas
- 5.4 Use Argand diagrams to represent complex numbers

Standard 6: Understand and apply basic and advanced concepts of statistics and data analysis

Benchmarks:

- 6.1 Understand methods of describing and presenting data
- 6.2 Understand methods of measuring central tendency of data
- 6.3 Understand methods of measuring dispersion of data

Standard 7: Understand and apply basic and advanced concepts of probability

Benchmarks:

- 7.1 Extend knowledge of probability notation
- 7.2 Extend knowledge of probability laws
- 7.2 Understand the concept of probability distributions and their parameters

Standard 8: Understand and apply basic and advanced properties of functions and algebra

Benchmarks:

- 8.1 Understand important results in algebra

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- 8.2 Extend the concept of number to include complex numbers
- 8.3 Understand the use of algebra to facilitate vector work
- 8.4 Understand methods of exploring the notion of function as a unifying theme in mathematics
- 8.5 Understand methods of solving polynomial equations
- 8.6 Explore the behavior of and solve circular functions both graphically and algebraically
- 8.7 Understand the applications of some important trigonometric identities

Standard 9: Understand the general nature and use of mathematics

Benchmarks:

- 9.1 Understand method of proof by induction in algebra
- 9.2 Explore mathematics at a philosophical level