

# Pure Mathematics

## What is pure mathematics?

Pure mathematics is primarily focused on the study of mathematical concepts and theory. The three traditional areas of pure mathematics are algebra, analysis, and geometry. As a mathematician works in these areas, they are seeking to understand and deepen their knowledge of mathematics itself. The foundation of pure mathematics is in proof, theory, and abstract concepts.

## What are some of the skills of a pure mathematician?

The study of pure mathematics leads students to develop skills in reasoning, proof, critical thinking, abstraction, and analysis.

These skills will be strengthened through the completion of courses such as real analysis, modern algebra, and geometry or topology.

## What are the career possibilities?

Typically, students interested in pure mathematics will pursue a graduate degree in preparation for a career. Pure mathematicians may work in academia or in other areas in which they can contribute to research and development.

## How does pure mathematics differ from applied mathematics?

While an applied mathematician solves problems that might occur in physics, engineering, biology, or finance, as examples, a pure mathematician is working to solve problems that occur within mathematics. A pure mathematician may develop theories or equations that may be used to solve problems encountered by an applied mathematician.

To gain understanding regarding the ways in which Applied Mathematics differs from Pure Mathematics, you might explore

[Applied Math vs. Pure Math: What Are the Differences? | Indeed.com](#)

[Math Careers | Pure and Applied Mathematics FAQ](#)

[Applied Math vs. Pure Math: What Are the Differences? | Indeed.com](#)

## Career Profiles

To explore possible careers for students who major in mathematics, you might explore descriptions of careers using the skills obtained through the study of mathematics.

[Careers in Math](#)

To gain insight into careers for mathematical sciences within business, industry, and government, you might explore the BIG Math Network

[BIG Math Network](#)

To understand the path toward becoming a research mathematician, consider reading

[Career paths in research mathematics](#)

## Organizations for Mathematics

American Mathematical Society (AMS)

To gain a better understanding of what mathematicians do, you might explore

[AMS :: What Do Mathematicians Do](#)

To view career profiles for mathematicians, you might explore the career page for the Mathematical Association of America (MAA)

[Career Profiles | Mathematical Association of America](#)

To view bios of current black mathematicians, use the Honorees and Circle of Excellence tabs on the site for Mathematically Gifted and Black

[Circle of Excellence - Mathematically Gifted & Black \(mathematicallygiftedandblack.com\)](#)

To view resources for women in math, consider exploring the website for the Association for Women in Math (AWM)

[On Women in Math – Association for Women in Mathematics \(AWM\) \(awm-math.org\)](#)

American Institute of Mathematics (AIM) is dedicated to “advance mathematical knowledge through collaboration, to broaden participation in the mathematical endeavor, and to increase awareness of the contributions of the mathematical sciences to society.”

[American Institute of Mathematics](#)

## Data for Employment of Mathematicians

To view data regarding salaries for mathematicians, you might explore

[Mathematicians and Statisticians : Occupational Outlook Handbook.](#)

## [Mathematician Salary | US News Best Jobs](#)

To view information regarding employers of mathematicians in New Jersey, consider viewing [Employers of Mathematics majors in NJ](#)

To view information regarding employers of mathematicians in New York, consider viewing [Employers of Mathematics majors in NY](#)

To view information regarding employers of mathematicians in Pennsylvania, consider viewing [Employers of Mathematics majors in PA](#)