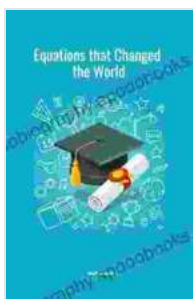


# Equations That Changed the World

## A Journey Through the History of Mathematics

Mathematics is the language of the universe. It is the tool we use to describe the world around us, from the smallest subatomic particles to the largest galaxies. And at the heart of mathematics are equations.

Equations are statements of equality. They tell us that two things are equal to each other. But equations are more than just mathematical statements. They are also powerful tools that can be used to solve problems, make predictions, and even change the world.



### Equations that changed the world by Alberto Carretero

★★★★☆ 4 out of 5

Language : English  
File size : 1156 KB  
Text-to-Speech : Enabled  
Screen Reader : Supported  
Enhanced typesetting : Enabled  
Word Wise : Enabled  
Print length : 11 pages  
Lending : Enabled



In this book, we will explore some of the most important equations in history. We will learn about the Pythagorean theorem, which allows us to calculate the length of the sides of a right triangle. We will learn about Einstein's theory of relativity, which revolutionized our understanding of

space and time. And we will learn about the Schrödinger equation, which describes the behavior of quantum particles.

These are just a few of the many equations that have changed the world. By understanding these equations, we can better understand the universe around us and our place in it.

## **Chapter 1: The Pythagorean Theorem**

The Pythagorean theorem is one of the oldest and most famous equations in mathematics. It states that in a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the other two sides.

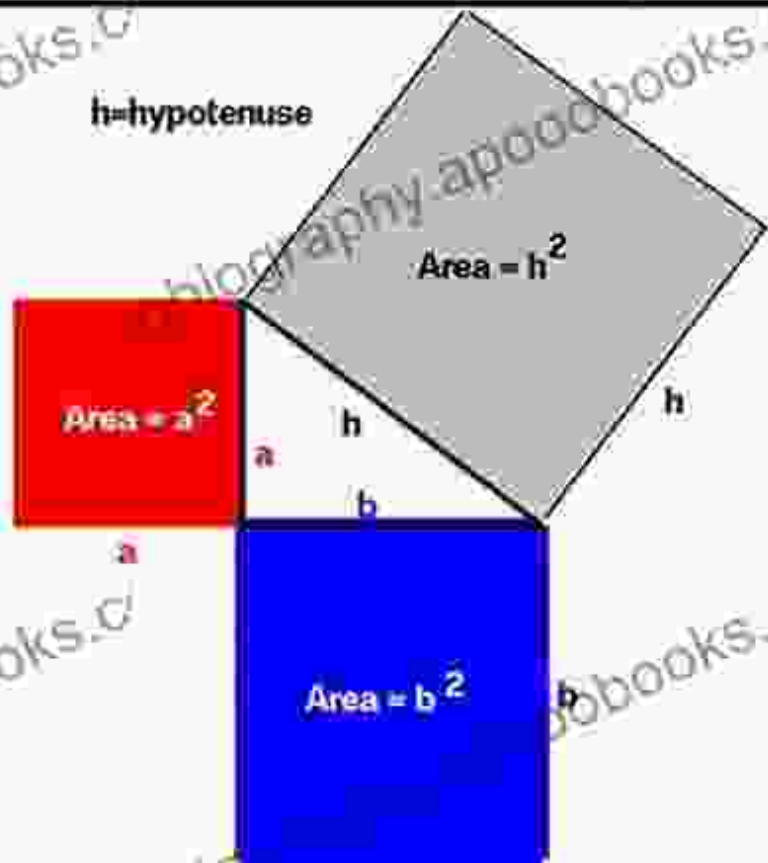
This theorem can be used to solve a wide variety of problems, such as finding the height of a building or the distance to a star. It is also used in many other areas of mathematics, such as trigonometry and geometry.



# Pythagorean Theorem

Glenn  
Research  
Center

For any right triangle with sides  $a$  and  $b$  and hypotenuse  $h$ , the square of the hypotenuse is equal to the sum of the squares of the other two sides.



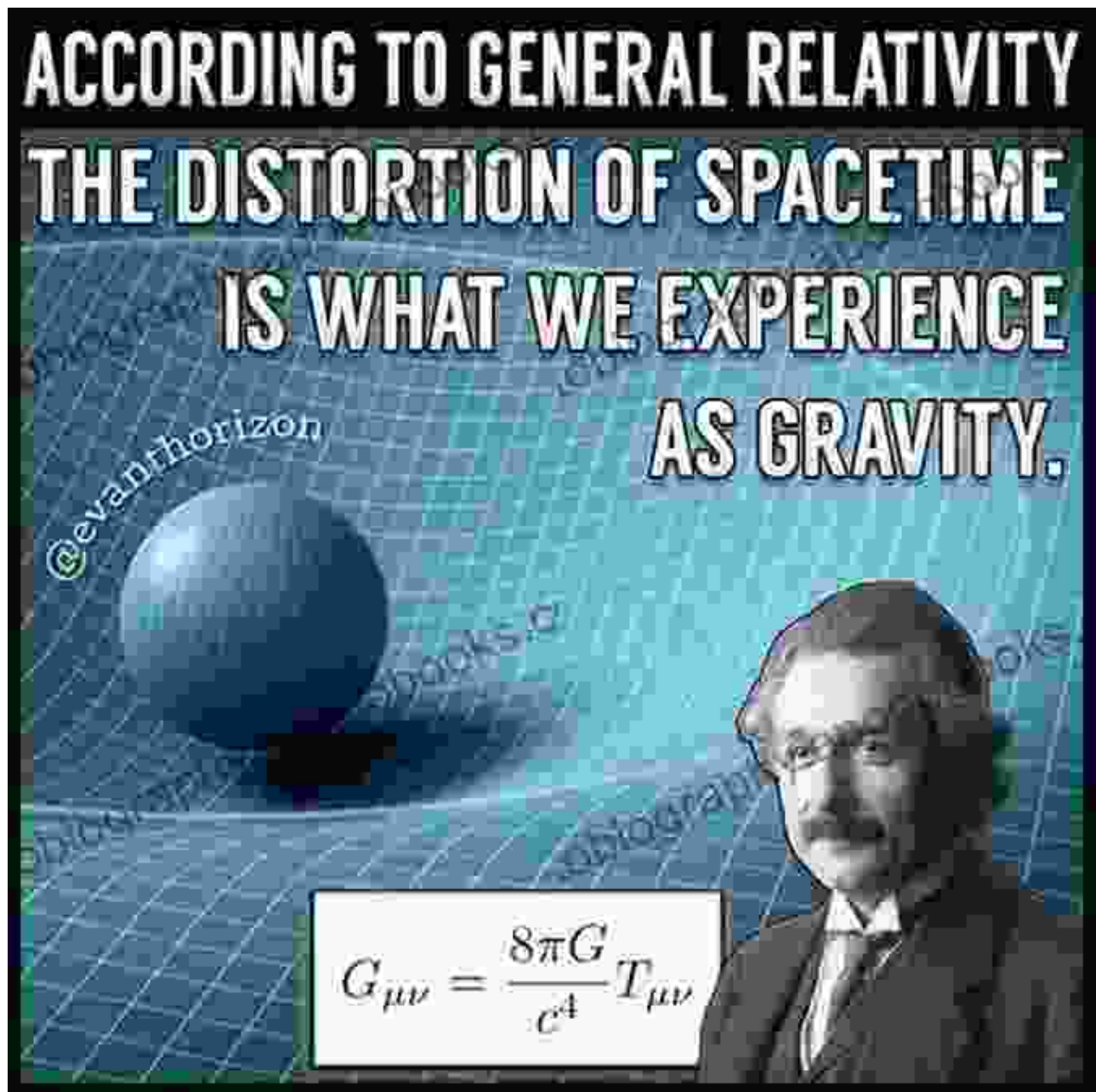
$$h^2 = a^2 + b^2$$

## Chapter 2: Einstein's Theory of Relativity

Einstein's theory of relativity is one of the most important and revolutionary scientific theories of all time. It changed our understanding of space, time, and gravity.

The theory of relativity is based on two main principles. The first principle is that the laws of physics are the same for all observers, regardless of their motion. The second principle is that the speed of light in a vacuum is the same for all observers, regardless of the motion of the light source or the observer.

These two principles have led to a number of surprising and counterintuitive results. For example, the theory of relativity tells us that time dilation occurs, meaning that moving clocks run slower than stationary clocks. It also tells us that objects can warp space-time, which is what causes gravity.



Einstein's theory of relativity

## Chapter 3: The Schrödinger Equation

The Schrödinger equation is a mathematical equation that describes the behavior of quantum particles. It is one of the most important equations in quantum mechanics, and it has played a major role in the development of modern physics.

The Schrödinger equation is a wave equation, which means that it describes the wave-like properties of quantum particles. It can be used to calculate the energy levels of atoms and molecules, and it can also be used to predict the behavior of quantum particles in other situations.

### The Schrödinger equation

- The equation must also give energies that are quantized
  - The **operator** form of equation.

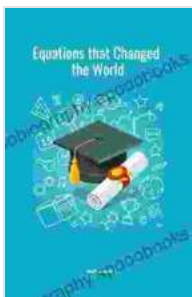
$H$  is now an **operator**  
(it has a “^” hat sign)

$$\hat{H}\Psi = E\Psi; \hat{H} = -\frac{\hbar^2}{2m} \frac{d^2}{dx^2} + \hat{V}(x)$$

Kinetic energy **operator**

The equations that we have discussed in this book are just a few of the many equations that have changed the world. These equations have helped us to understand the universe around us, and they have also helped us to develop new technologies that have changed the way we live.

As we continue to explore the world around us, we will undoubtedly discover new equations that will change our understanding of the universe. These new equations will help us to solve even more problems and to make even more progress. The future of mathematics is bright, and the equations that we discover will continue to change the world.

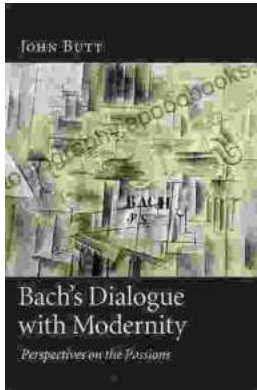


### **Equations that changed the world** by Alberto Carretero

★ ★ ★ ★ ☆ 4 out of 5

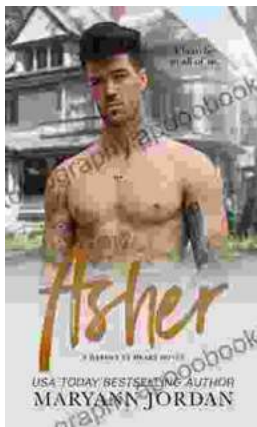
- Language : English
- File size : 1156 KB
- Text-to-Speech : Enabled
- Screen Reader : Supported
- Enhanced typesetting : Enabled
- Word Wise : Enabled
- Print length : 11 pages
- Lending : Enabled





## **Bach Dialogue With Modernity: A Journey Through Time and Harmony**

Prelude: Bach's Timeless Legacy Johann Sebastian Bach, the Baroque master, crafted music that continues to resonate across centuries. His...



## **Asher Heroes At Heart Maryann Jordan: The Essential Guide to Inspiring True Leaders**

Are you ready to unlock your leadership potential and make a lasting impact on the world? Asher Heroes At Heart by Maryann Jordan is the essential...