



# Survey of Mathematics

978-1-63545-024-8



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Source	Author(s) (Text or Video)	Title(s)	Link (where applicable)
OpenStax	Various	Various	<a href="#">OpenStax</a>
Mathispower4u	James Sousa	MathIsPower4U	<a href="#">Mathispower4U Videos</a>

Alta Survey of Mathematics was developed to meet the scope and sequence of a typical one-semester survey of mathematics course. To develop the course, Knewton used a variety of different source content, including OpenStax, videos created by a Math Professor we have partnered with, and a team of Subject Matter Experts (SMEs). The SMEs come from diverse backgrounds and are all accomplished academics in the field of mathematics.

Alta Survey of Mathematics has two instructional sequences for every learning objective, giving students multiple opportunities to learn new concepts. Between our OpenStax, video, and Knewton SMEs, we were able to solicit ideas from math instructors and students at all levels of higher education. Alta Survey of Mathematics covers the typical breadth of survey topics, and also provides the necessary depth to ensure the course is manageable and engaging for instructors and students alike.

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### Chapter 1: Critical Thinking Skills

#### 1.1 Inductive and Deductive Reasoning

- Inductive and Deductive Reasoning
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  - Understand and use deductive reasoning

#### 1.2 Estimation

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- Estimation from Graphs/Figures
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#### 1.3 Problem Solving

- Problem Solving
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### Chapter 2: Sets

#### 2.1 Set Concepts

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  - Represent a set using set builder notation
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- Representing Sets with Venn Diagrams
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-

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-

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- Early Computational Methods
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- Properties of Real Numbers
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-

## 5.6 Rules of Exponents and Scientific Notation

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  - Write terms of an arithmetic sequence
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  - Find the sum of a finite geometric series

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-



## 6.2 Linear Equations

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- Vertical, Horizontal, Parallel, and Perpendicular Lines
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- Linear Inequalities in Two Variables
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-

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### 7.5 Systems of Linear Inequalities

- Solving Systems of Linear Inequalities
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- Mass and Temperature
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- Points, Lines, and Planes
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  - Find the intersection or union of two line segments, a ray and a line segment, or two rays
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- Angles
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- Polygons
    - Identify polygons given their properties
    - Use properties of similar polygons to solve for a missing side
    - Determine the measure of an angle using properties of polygons
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  - Use properties of triangles and right angles
  - Use properties of similar triangles to solve for a missing side or angle
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## Chapter 10: Mathematical Systems

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### **Chapter 12: Probability and Counting Methods**

#### 12.1 The Fundamental Counting Principle

- The Fundamental Counting Principle
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#### 12.6 Random Variables, Probability Distributions and Expected Value

- Random Variables, Probability Distributions, and Expected Value
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### **Chapter 13: Statistics**

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- Scatter Plots, Correlations, and Regression Lines
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- Modeling Relationships with Graphs
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## 14.2 Euler Paths and Euler Circuits

- Euler Paths and Euler Circuits
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-

- Apportionment Methods
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#### 15.4 Flaws of the Apportionment Methods

- Flaws of the Apportionment Methods
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-