



1. **Combinatorics and Probability:**
 - Introduction to permutations and combinations.
 - Fundamental principles of counting: Addition and Multiplication Principles.
 - Binomial coefficients and combinatorial proofs.
 - Calculating probabilities for simple and compound events.
 - Understanding and applying the concepts of independent and dependent events.
 - Solving probability problems using permutations and combination

Phet Links:

[Plinko Probability](#)

LabXchange Links:

[Combinatorics](#)

[Combinatorics: Counting the Wrong Thing](#)

[Combinatorics: Problems to Solve](#)

[Probability](#)

[Summary Statistics and Probability](#)

2. **Basic Statistics:**
 - Measures of central tendency (mean, median, mode) and variability (range).
 - Representing data using histograms, bar charts, and pie charts.
 - Introduction to standard deviation and variance.

Phet Links:

[Mean: Share and Balance](#)

[Plinko Probability](#)

LabXchange Links:

[Introduction to Statistics](#)

[Data Visualization](#)

[Summary Statistics and Probability](#)

3. **Trigonometry:**
 - Trigonometric ratios (sine, cosine, tangent) for acute angles.
 - Solving right-angled triangle problems using trigonometry.
 - Understanding the unit circle and trigonometric identities.

Phet Links:

[Trig Tour](#)

LabXchange Links:

[Tips To Graph Trigonometric Functions](#)

[Radian vs Degree](#)

[Sine Or Cosine Rule?](#)

4. **Coordinate Geometry:**
 - Equations of lines and circles in the Cartesian plane.
 - Finding slopes and intercepts of lines.

Phet Links:

[Graphing Lines](#)

[Graphing Slope-Intercept](#)

LabXchange Links:

[Coordinates & Equations](#)

5. **Geometry:**
 - Properties of polygons and regular polygons.
 - Understanding congruence and similarity of triangles and other shapes.
 - Solving problems involving area and volume of basic figures.
 - Pythagorean theorem
 - Congruence and similarity

Phet Links:

[Area Builder](#)

[Area Model Algebra](#)

[Pythagoras' Theorem](#)

6. **Advanced Word Problems:**
 - Challenging word problems involving multiple concepts and real-life applications.
 - Applying mathematical skills to practical scenarios.

LabXchange Links:

[Reasoning, Planning and Solving Problems](#)

[Economic Inequality](#)

7. **Conic Sections:**
 - Understanding the equations and properties of circles, ellipses, parabolas, and hyperbolas.
 - Graphing conic sections in the Cartesian plane.

Phet Links:

[Graphing Quadratics](#)

LabXchange Links:

[Quadratic Equations](#)

8. **Complex Numbers:**
 - Understanding and performing operations with complex numbers.
 - Representing complex numbers in polar form.

LabXchange Links:

[Quadratic Equations: Negative Square Roots and Complex Solutions](#)