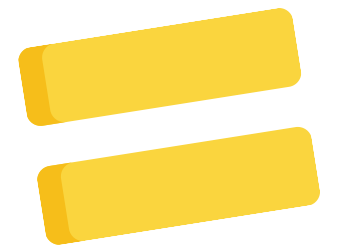
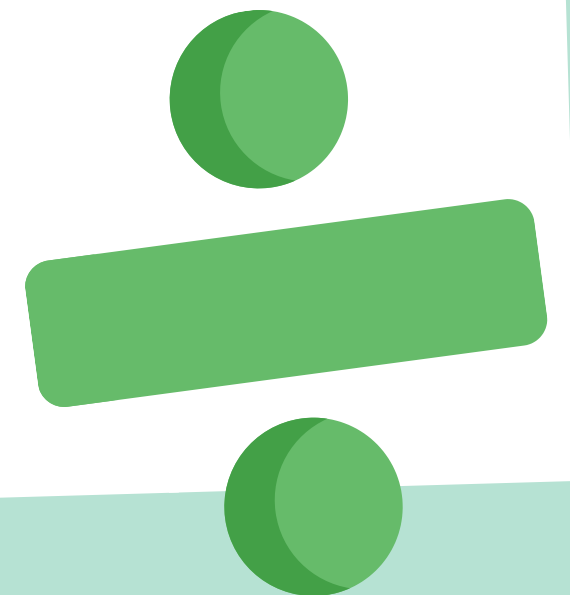
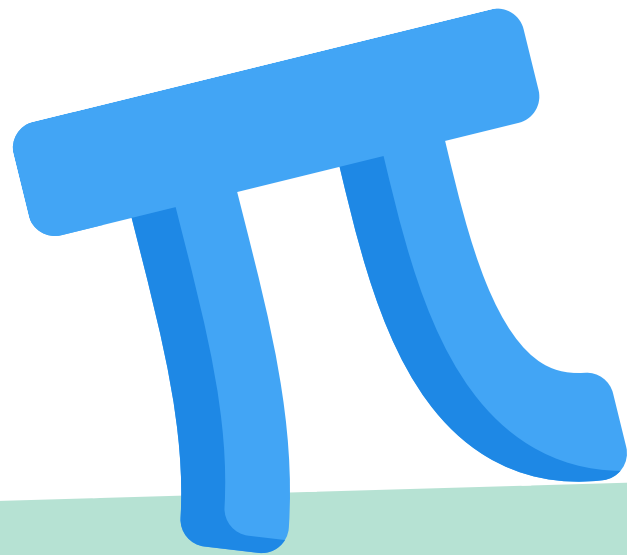


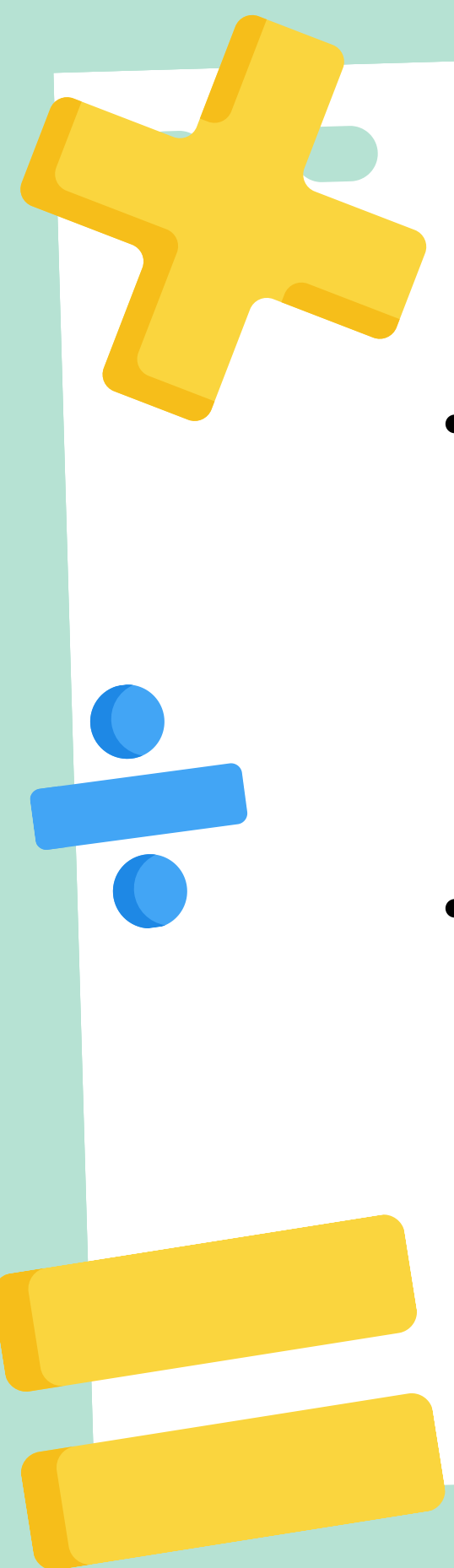


Eighth Grade



Math Curriculum





Algebra



- **Properties of The Real Numbers**
 - Raise a positive number to a fractional power and simplify appropriately, including rationalizing the denominator of a simple radical expression.
 - Know and use of the rules of exponents extended to fractional exponents.
 - Use the definition of absolute value to solve equations such as $|2x - 3| + 3x = 4x - 2$
 - and understand why “extraneous solutions” are not solutions at all.
- **Relations, Functions, and Graphs (Two Variables)**
 - Plot a set of ordered pairs and surmise a reasonable graph of which the points are a part.
 - Make a reasonable table of ordered pairs from a given function rule, plot the points, and surmise its graph.
 - Know that the points of intersections of two graphs are simultaneous solutions of the relations that define them and indicate approximate numerical solutions.



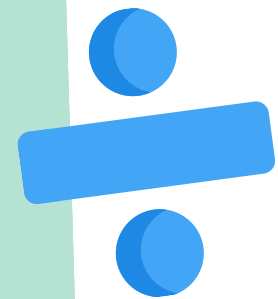
Algebra

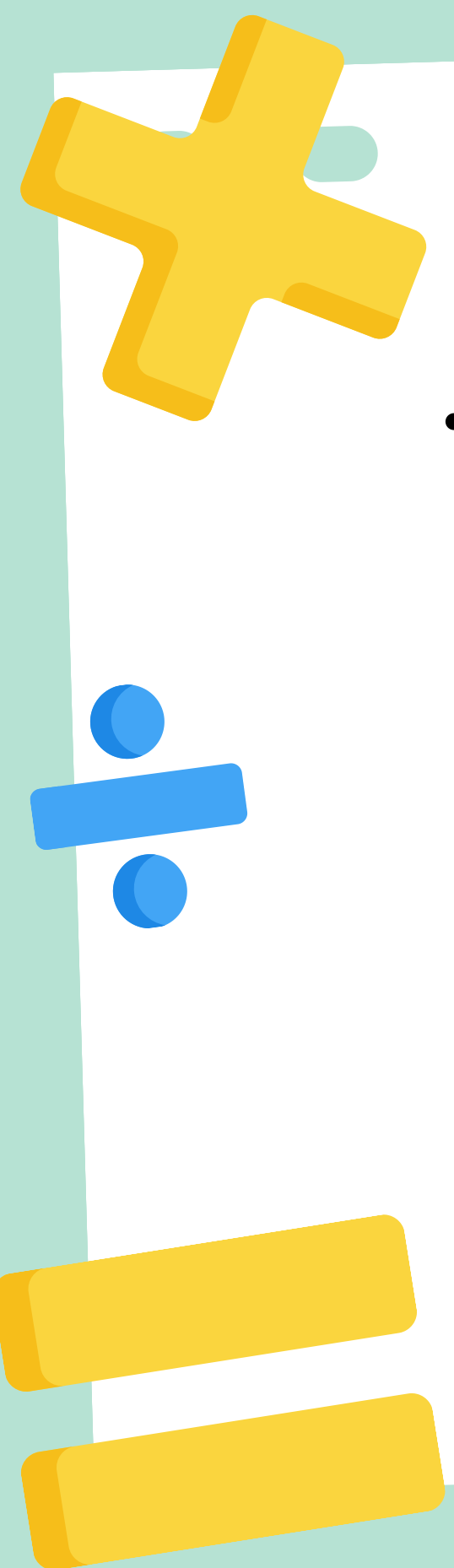
- **Linear Equations and Functions (Two Variables)**
 - Graph linear equations by finding the x- and y-intercepts; for example, know that $2x + 3y = 4$ is linear and graph it using its intercepts.
 - Convert between slope-intercept form ($y = mx + b$) and standard form ($ax + by = c$).
 - Write an equation for a line given two points or one point and its slope.
 - Know lines are parallel or perpendicular from their slopes.
 - Find the equation of a line perpendicular to a given line that passes through a given point.
 - Understand and graph the solution set of a linear inequality.
 - Solve a system of two linear equations in two variables algebraically and interpret the answer graphically.
 - Solve a system of two linear inequalities in two variables and sketch the solution set.
 - Solve word problems (including mixture, digit, and age problems) that involve linear equations.



Algebra

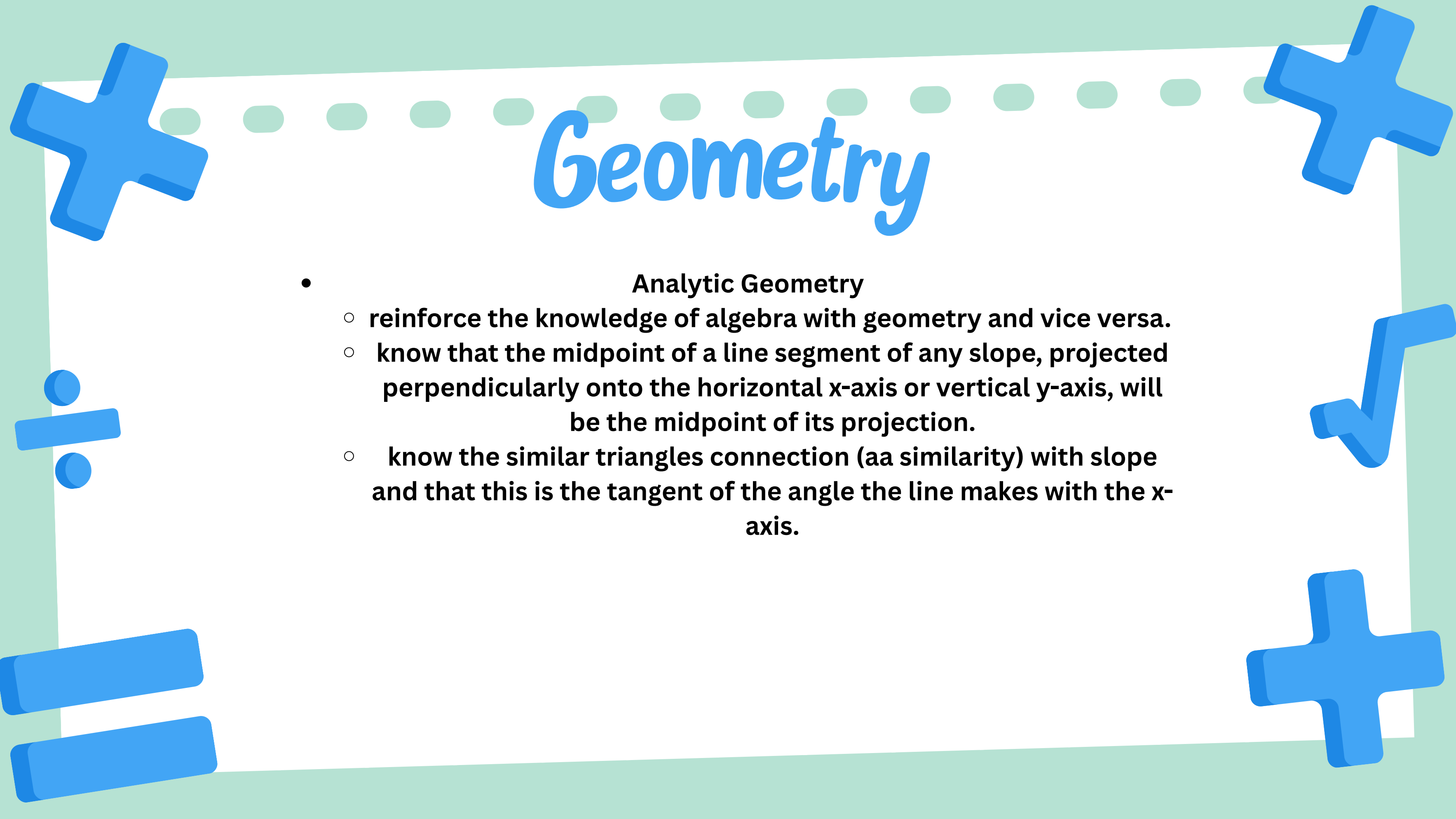
- **Arithmetic of Rational Expression**
 - **Factor second- and higher-degree polynomials when standard techniques apply, such as factoring the GCF out of all terms of a polynomial, the difference of two squares, and perfect squares trinomials.**
 - **Add, subtract, multiply, and divide rational expressions and express in simplest form.**
- 





Algebra

- Quadratic Equations and Functions
 - Solve quadratic equations in one variable by factoring or by completing the square.
 - Complete the square to write a quadratic expression as the difference of two squares.
 - Graph quadratic functions by completing the square to find the vertex and know that their zeros (roots) are the x-intercepts.
 - Know the quadratic formula and be familiar with its proof by completing the square.
 - Know how to clear fractions to solve equations that lead to linear or quadratic equations.
 - Know how to use squaring to solve problems that lead to linear or quadratic equations.
 - Solve word problems, including physical problems such as the motion of an object under the force of gravity, and combined rate (work) problems
- 



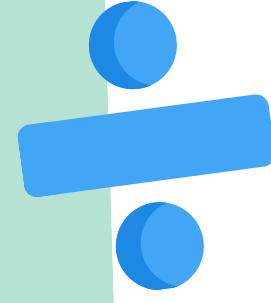
Geometry

- **Analytic Geometry**
 - reinforce the knowledge of algebra with geometry and vice versa.
 - know that the midpoint of a line segment of any slope, projected perpendicularly onto the horizontal x-axis or vertical y-axis, will be the midpoint of its projection.
 - know the similar triangles connection (aa similarity) with slope and that this is the tangent of the angle the line makes with the x-axis.



Geometry

Introduction to Trigonometry

- - Know that in a right triangle the cosine of an angle is the ratio of the adjacent side to the hypotenuse and the sine is the ratio of the opposite side to the hypotenuse.
 - Know the values of the sine, cosine, and tangent of 0, 30, 45, 60, and 90 degrees and use a scientific calculator to determine the approximate value of any acute angle.
 - use a scientific calculator to determine the approximate value of an acute angle of a Given sine, cosine, or tangent.
- 
- 
- 
- 



Triangles and Proofs

- Prove that the bisector of an angle is the set of all points equidistant from both sides.
 - Prove that any triangle inscribed in a circle with one side as the diameter is a right triangle.
 - Prove the Pythagorean Theorem.
 - Know that a line tangent to a circle is perpendicular to the radius at the point of tangency.
 - Taking geometry as a model, understand the concept of a mathematical proof, as distinct from an opinion, an approximation, or a conjecture based on specific cases.
 - In geometry and elsewhere, understand that a single-counter example suffices to disprove a general assertion
- 
- 
- 