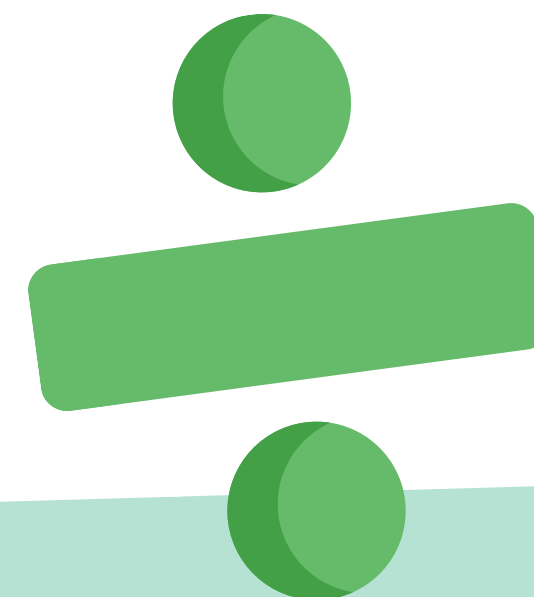
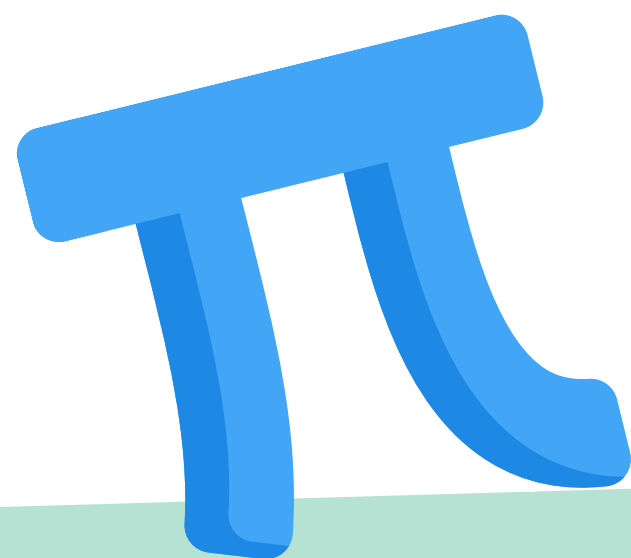




Sixth Grade



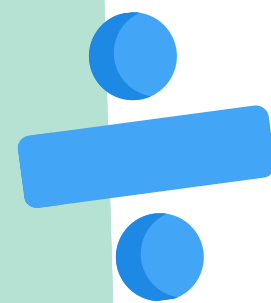
Math Curriculum





Numbers and Number Sense

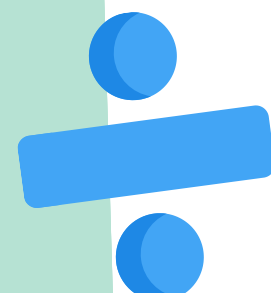
- Read and write numbers (in digits and words) up to the trillions.
- Recognize place value up to hundred-billions.
- Integers (review):
 - Locate positive and negative integers on a number line.
 - Compare integers using, =.
 - Know that the sum of an integer and its opposite is 0.
 - Add and subtract positive and negative integers.
- Determine whether a number is a prime number or composite number.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand; to the nearest hundred thousand; to the nearest million.





Numbers and Number Sense

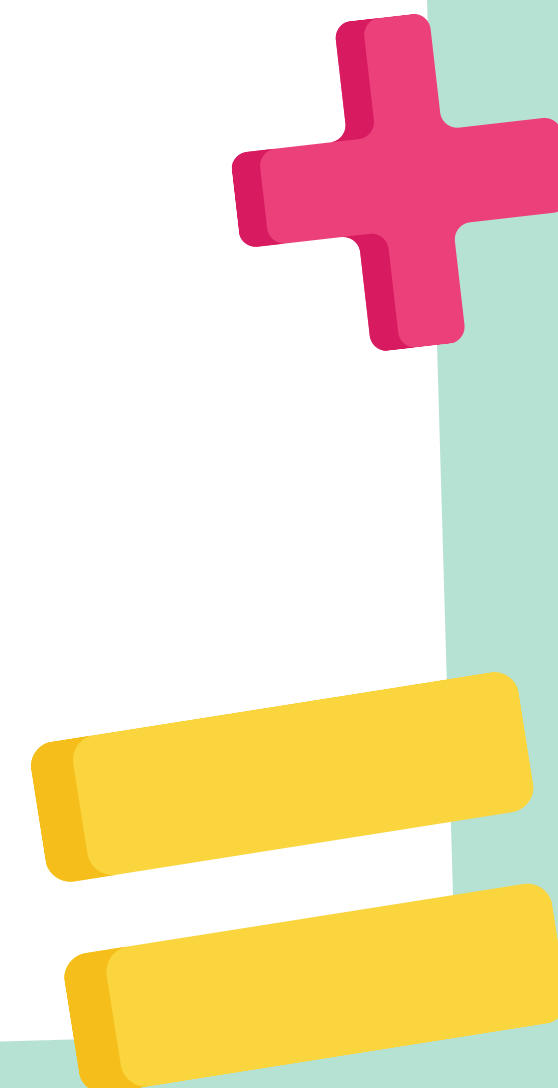
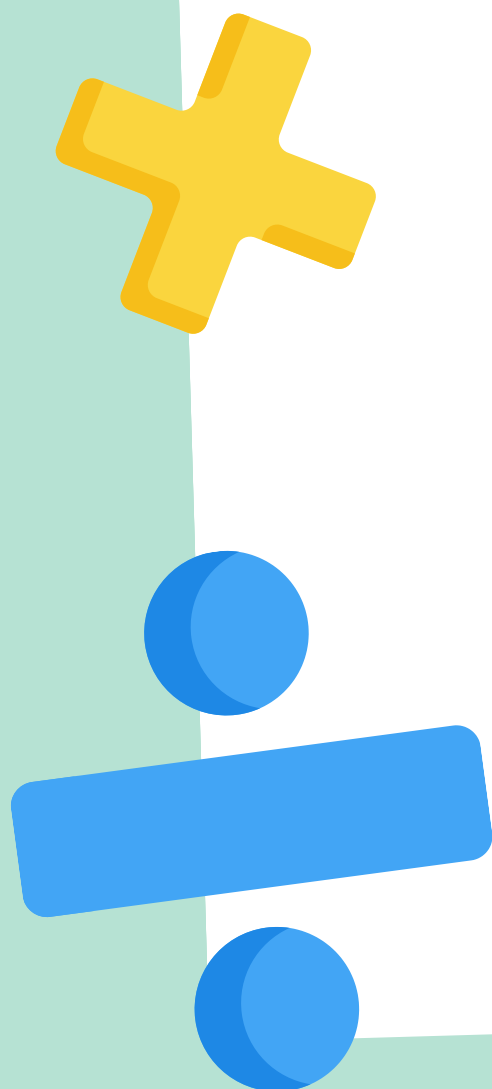
- Compare and order whole numbers, mixed numbers, fractions, and decimals, using the symbols, =.
 - Determine the greatest common factor (GCF) of given numbers.
 - Determine the least common multiple (LCM) of given numbers.
- Exponents:
- Review squares and square roots.
 - Using the terms squared and cubed and to the nth power, read and evaluate numerical expressions with exponents.
 - Review powers of ten.
 - Write numbers in expanded notation using exponents





Ratio, Percent, and Proportion

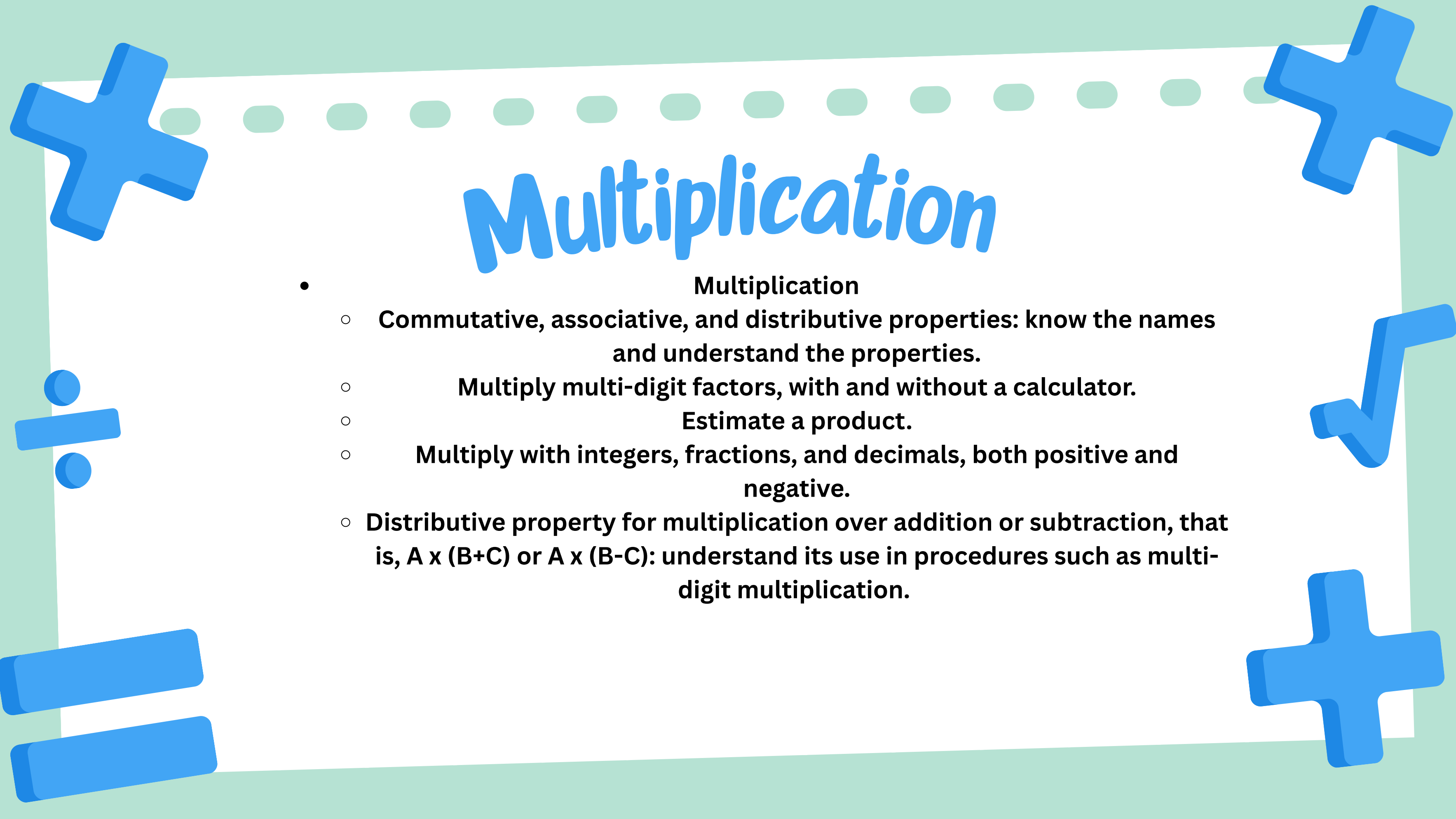
- **Ratio and proportion**
 - Solve proportions, including word problems involving proportions with one unknown.
 - Use ratios and proportions to interpret map scales and scale drawings.
 - Set up and solve proportions from similar triangles.
 - Understand the justification for solving proportions by cross-multiplication.
- **Percent**
 - Convert between fractions, decimals, and percents.
 - Find the given percent of a number and find what percent a given number is of another number.
 - Solve problems involving percent increase and decrease.
 - Find an unknown number when a percent of the number is known.
 - Use expressions with percents greater than 100% and less than 1%.





Addition

- **Addition, commutative and associative properties: know the names and understand the properties.**
- **Understand addition and subtraction as inverse operations.**
- **Add and subtract with integers, fractions and decimals, both positive and negative.**



Multiplication

- **Multiplication**
 - **Commutative, associative, and distributive properties: know the names and understand the properties.**
 - **Multiply multi-digit factors, with and without a calculator.**
 - **Estimate a product.**
 - **Multiply with integers, fractions, and decimals, both positive and negative.**
 - **Distributive property for multiplication over addition or subtraction, that is, $A \times (B+C)$ or $A \times (B-C)$: understand its use in procedures such as multi-digit multiplication.**



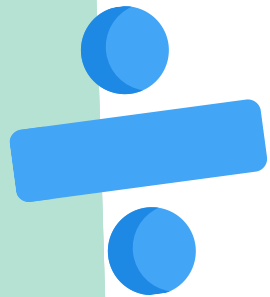
Division

- Understand multiplication and division as inverse operations.
- Estimate the quotient.
- Divide multi-digit dividends by up to three-digit divisors, with and without a calculator.
- Divide with integers, fractions, or decimals, both positive and negative.



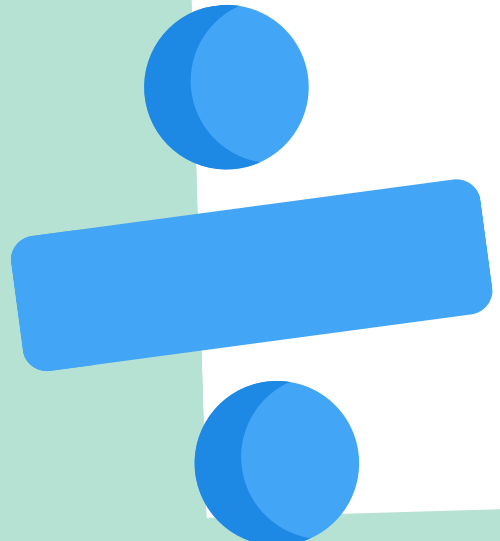
Solving Problems and Equations

- Solve word problems with multiple steps.
- Solve problems with more than one operation, according to order of operations (with and without a calculator).



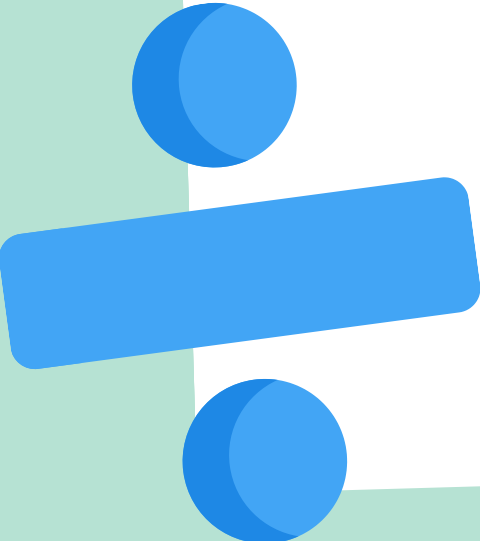


Measurement

- Solve problems requiring conversion of units within the U. S. Customary System, and within the metric system.
 - Associate prefixes used in metric system with quantities:
 - kilo = thousand
 - hecto = hundred
 - deka = ten
 - deci = tenth
 - centi = hundredth
 - milli = thousandth
 - Time: solve problems on elapsed time; express parts of an hour in fraction or decimal form.
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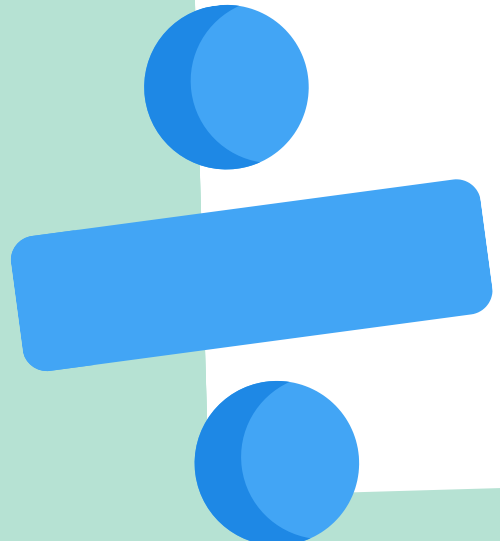


Geometry

- Identify and use signs that mean
 - congruent $\cong$
 - similar $\sim$
 - parallel $\parallel$
 - perpendicular $\perp$
 - Construct parallel lines and a parallelogram.
 - Construct a perpendicular bisector.
 - Know that if two lines are parallel, any line perpendicular to one is also perpendicular to the other; and, that two lines perpendicular to the same line are parallel. 166
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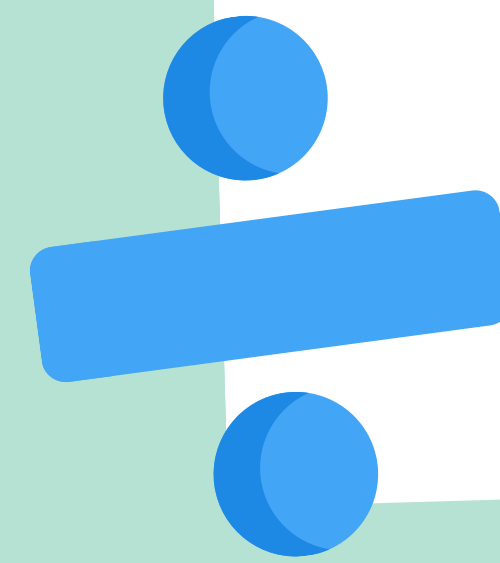


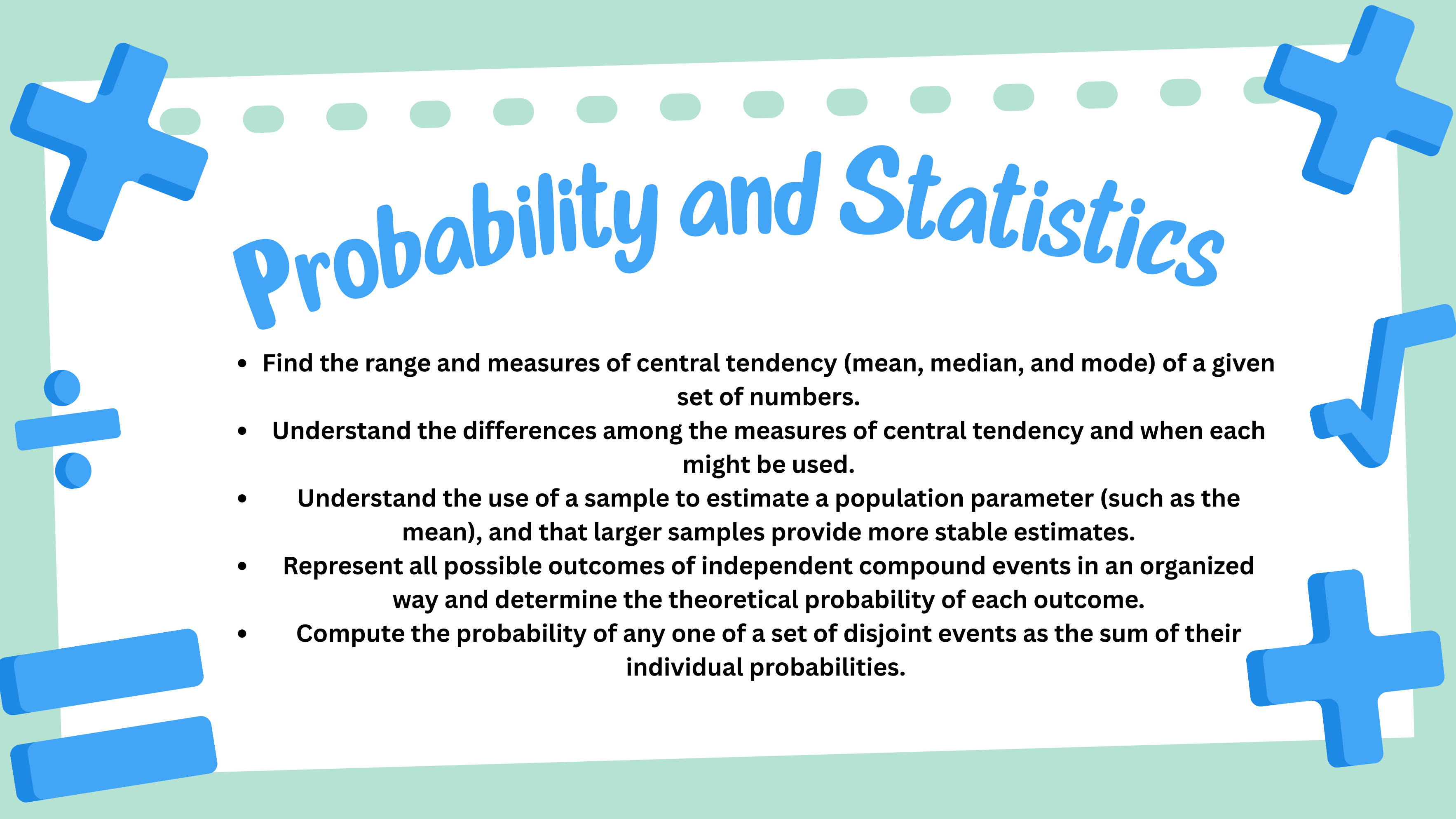
Geometry

- **Angles:**
 - Identify and measure the degrees in angles (review terms: right, acute, obtuse, straight).
 - Bisect an angle.
 - Construct an angle congruent to a given angle.
 - Construct a figure congruent to a given figure, using reflection over a line of symmetry, and identify corresponding parts.
 - Show how congruent plane figures can be made to correspond through reflection, rotation, and translation.
 - **Triangles:**
 - Know that the sum of the measures of the angles of a triangle is 180° .
 - Construct different kinds of triangles.
 - Know terms by which we classify kinds of triangles: by length of sides: equilateral, isosceles, scalene by angles: right, acute, obtuse
 - (Identify congruent angles and sides, and axes of symmetry, in parallelograms, rhombuses, rectangles, and squares.)
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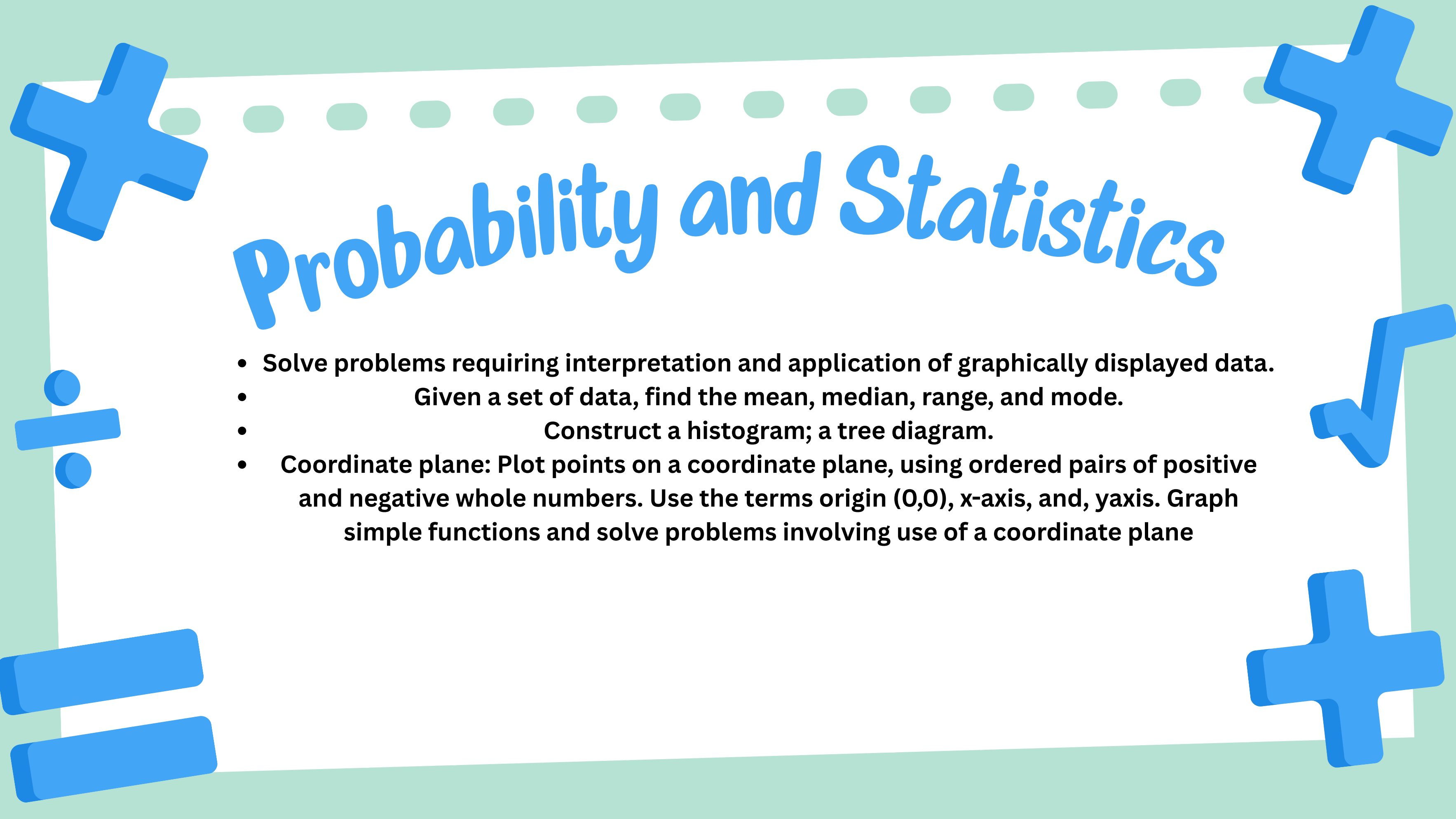
Geometry

- Find the area (A) and perimeter (P) of plane figures, or given the area or perimeter find the missing dimension, using the following formulas:
 - rectangle $A = lw$ $P = 2(l + w)$
 - square $A = s^2$ $P = 4s$
 - triangle $A = \frac{1}{2}bh$ $P = s_1 + s_2 + s_3$
 - parallelogram $A = bh$ $P = 2(b + s)$
 - Circles:
 - Identify arc, chord, radius (plural: radii), and diameter; know that radius = $\frac{1}{2}$ diameter.
 - Using a compass, draw circles with a given diameter or radius.
 - Solve problems involving application of the formulas for finding the circumference of a circle:
 $C = \pi d$, and $C = 2\pi r$, using 3.14 as the value of pi.
 - Find the area of a circle using the formula $A = \pi r^2$. Find volume of rectangular solids, or given the volume find a missing dimension, using the formulas $V = lwh$, or $V = bh$ (in which b = area of base).
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Probability and Statistics

- Find the range and measures of central tendency (mean, median, and mode) of a given set of numbers.
- Understand the differences among the measures of central tendency and when each might be used.
- Understand the use of a sample to estimate a population parameter (such as the mean), and that larger samples provide more stable estimates.
- Represent all possible outcomes of independent compound events in an organized way and determine the theoretical probability of each outcome.
- Compute the probability of any one of a set of disjoint events as the sum of their individual probabilities.



Probability and Statistics

- Solve problems requiring interpretation and application of graphically displayed data.
- Given a set of data, find the mean, median, range, and mode.
- Construct a histogram; a tree diagram.
- Coordinate plane: Plot points on a coordinate plane, using ordered pairs of positive and negative whole numbers. Use the terms origin (0,0), x-axis, and, yaxis. Graph simple functions and solve problems involving use of a coordinate plane



Pre-Algebra

- Recognize uses of variables and solve linear equations in one variable.
 - Solve word problems by assigning variables to unknown quantities, writing appropriate equations, and solving them.
 - Find the value for an expression, given replacement values for the variables; for example, what is $7/x - y$ when x is 2 and y is 10?
 - Simplify expressions with variables by combining like terms.
 - Understand the use of the distributive property in variable expressions such as $2x(2y + 3)$.
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