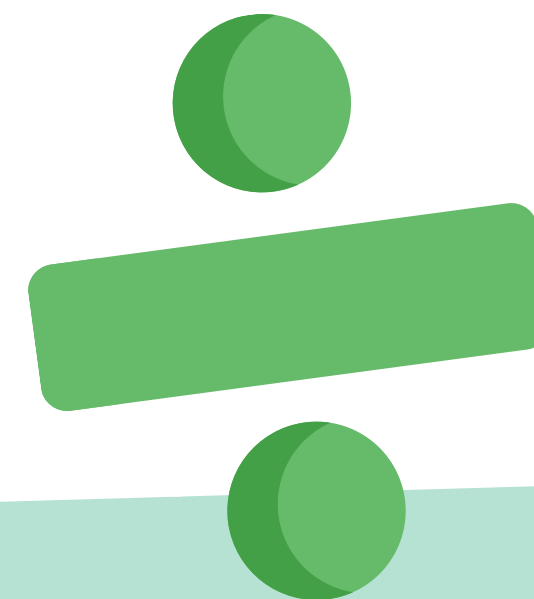
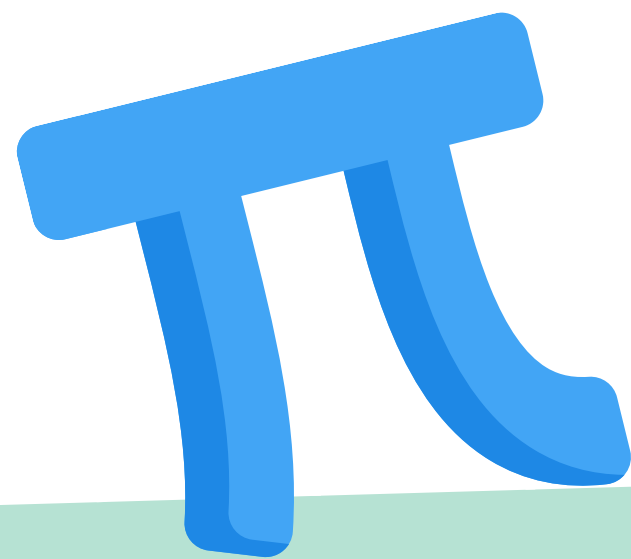




# Fifth Grade

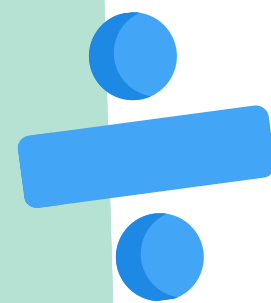
Math Curriculum





# Numbers and Number Sense

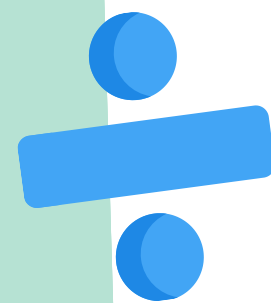
- Read and write numbers (in digits and words) up to the billions.
- Recognize place value up to the billions.
- Order and compare number to 999,999,999 using the signs  $<$ ,  $>$ , and  $=$ .
- Write numbers in expanded form.
- **Integers**
  - Locate positive and negative integers on a number line.
  - Compare integers using the symbols  $<$ ,  $>$ , and  $=$ .
  - Know the sum of an integer and its opposite is 0.
  - Add and subtract positive and negative integers.
- Using a number line, locate positive and negative whole numbers.
- Round to the nearest ten; to the nearest hundred; to the nearest thousand; to the nearest hundred thousand





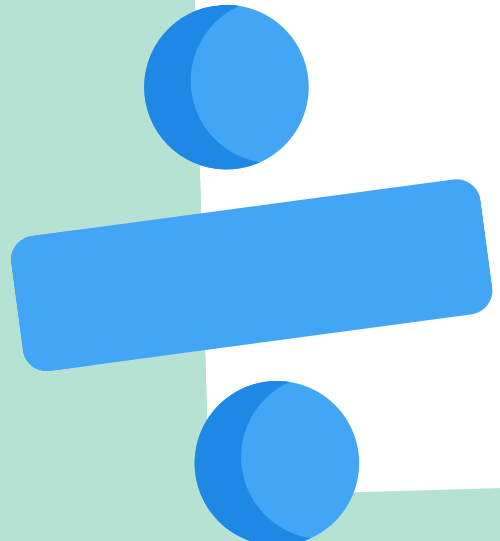
# Numbers and Number Sense

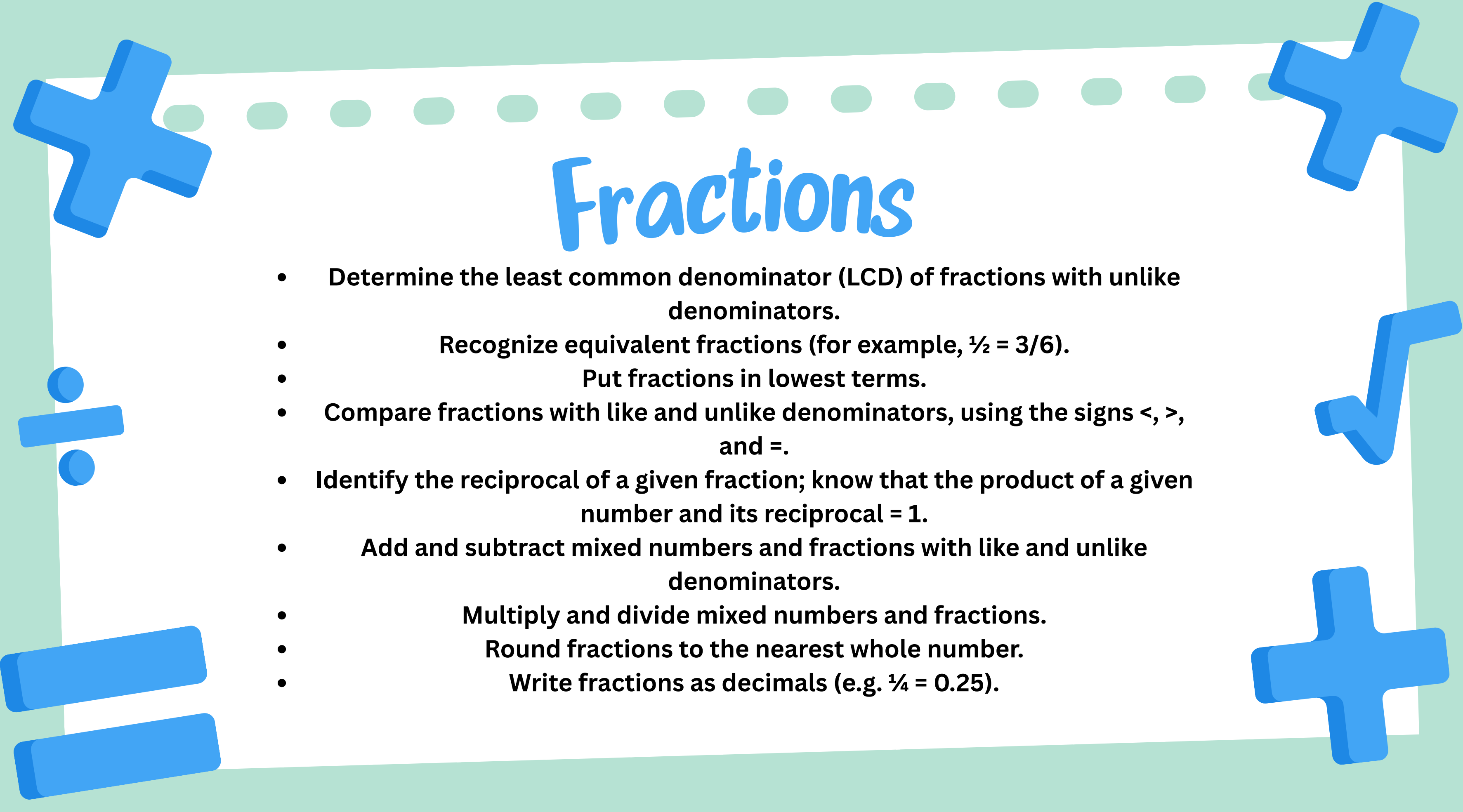
- Exponents
    - Review perfect squares and square roots to 144; recognize the square root sign,  $\sqrt{\phantom{x}}$
    - Using the terms squared and cubed and to the nth power, read and evaluate numerical expressions with exponents.
    - Identify the powers of ten up to  $10^6$ .
  - Identify a set and the members of a set as indicated by  $\{ \}$ .
  - Identify numbers under 100 as prime or composite.
  - Identify prime factors of numbers to 100 and write exponential notation for multiple primes.
  - Determine the greatest common factor (GCF) of given numbers.
  - Determine the least common multiples (LCM) of given numbers.
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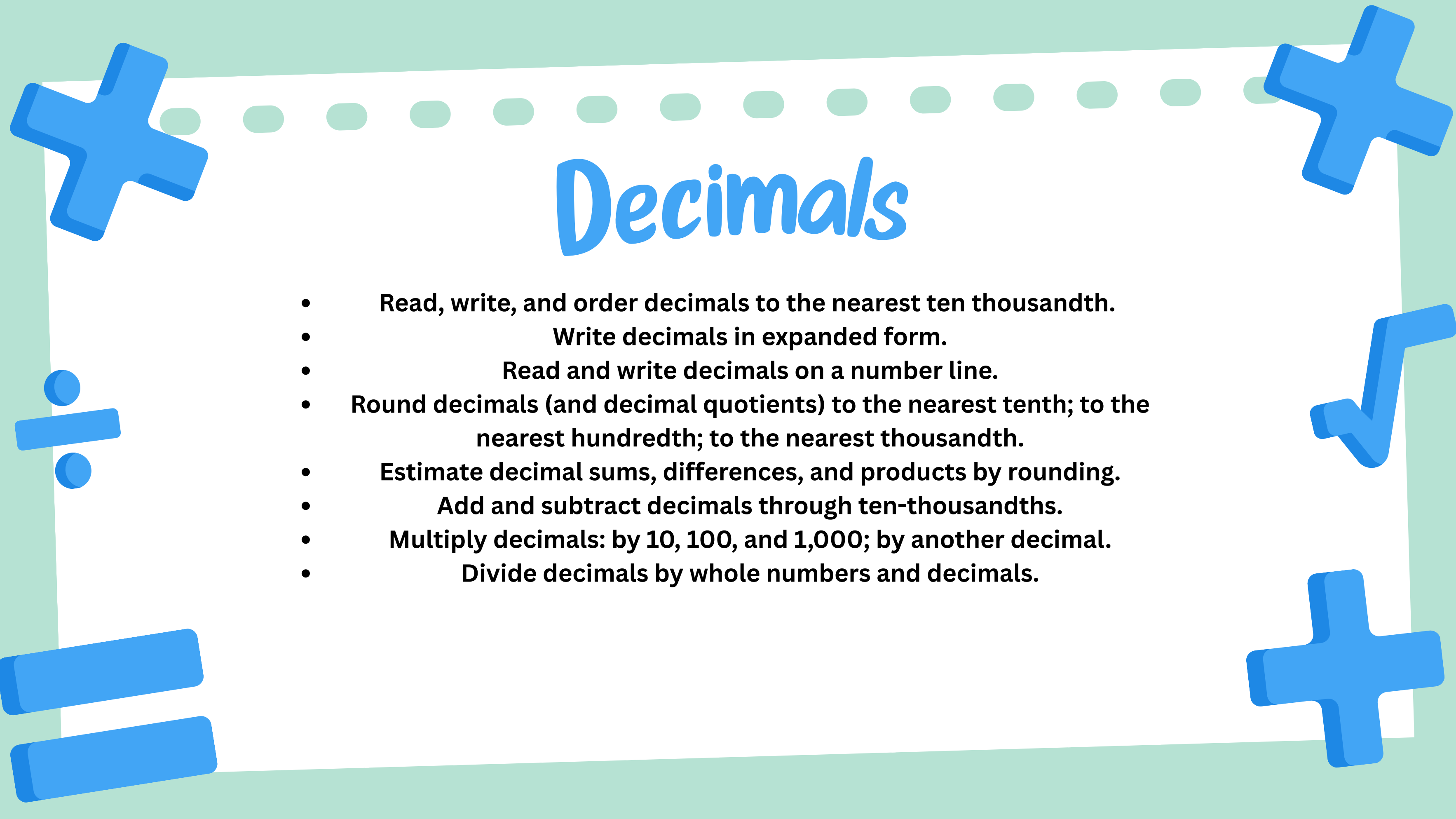
# Ratio and Percent

- **Ratio**
    - Determine and express simple ratios.
    - Use ratio to complete a simple scale drawing.
    - Ratio and rate: solve problems on speed as ratio using the formula  $S=D/T$  (or  $D = R \times T$ )
  - **Percent**
    - Recognize the percent sign (%) and under percent as “per hundred.”
    - Find the given percent of a number.
    - Express equivalences between fractions, decimals, and percents, and know common equivalences: 1.  $1/10 = 10\%$  2.  $1/4 = 25\%$  3.  $1/2 = 50\%$  4.  $3/4 = 75\%$
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# Fractions

- Determine the least common denominator (LCD) of fractions with unlike denominators.
- Recognize equivalent fractions (for example,  $\frac{1}{2} = \frac{3}{6}$ ).
- Put fractions in lowest terms.
- Compare fractions with like and unlike denominators, using the signs  $<$ ,  $>$ , and  $=$ .
- Identify the reciprocal of a given fraction; know that the product of a given number and its reciprocal = 1.
- Add and subtract mixed numbers and fractions with like and unlike denominators.
- Multiply and divide mixed numbers and fractions.
- Round fractions to the nearest whole number.
- Write fractions as decimals (e.g.  $\frac{1}{4} = 0.25$ ).



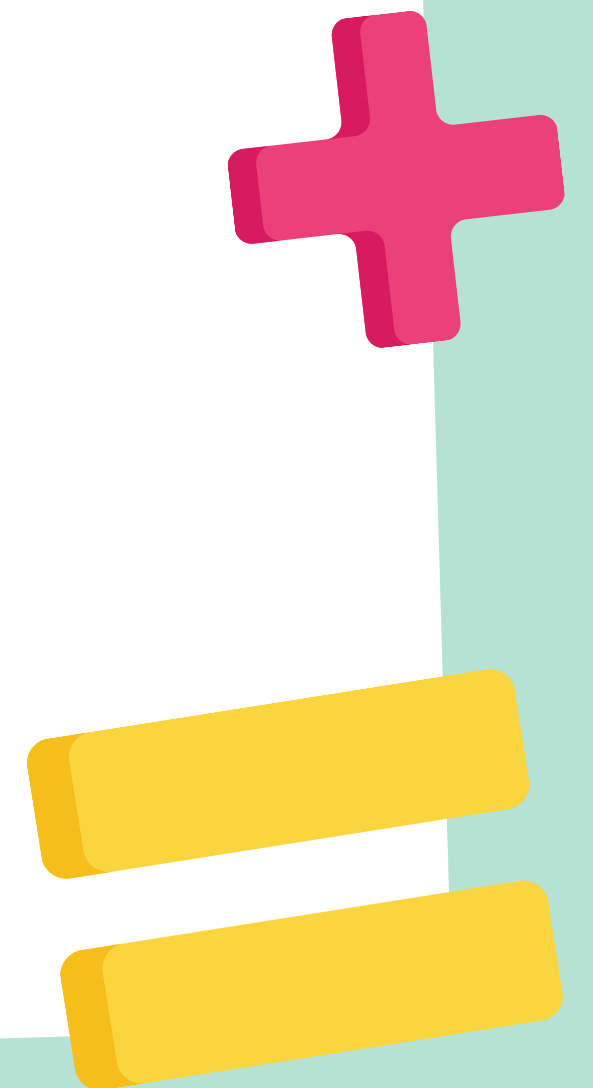
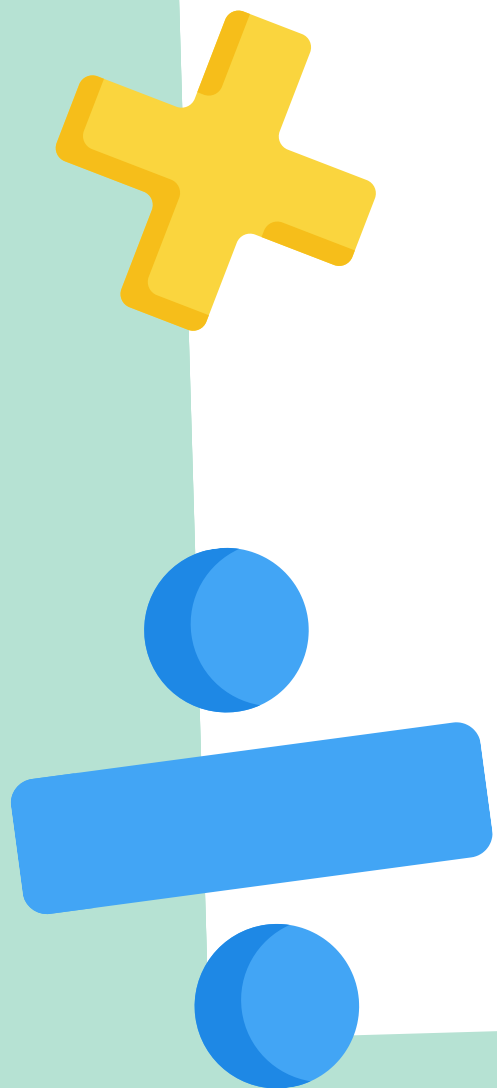
# Decimals

- Read, write, and order decimals to the nearest ten thousandth.
- Write decimals in expanded form.
- Read and write decimals on a number line.
- Round decimals (and decimal quotients) to the nearest tenth; to the nearest hundredth; to the nearest thousandth.
- Estimate decimal sums, differences, and products by rounding.
- Add and subtract decimals through ten-thousandths.
- Multiply decimals: by 10, 100, and 1,000; by another decimal.
- Divide decimals by whole numbers and decimals.



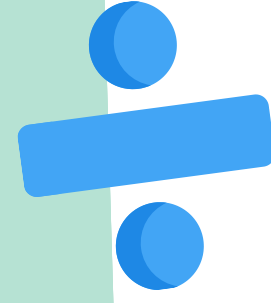
# Addition and Multiplication

- **Addition**
  - **Commutative and associative properties: know the names and understand the properties.**
- **Multiplication**
  - **Commutative, associative, and distributive properties: know the names and understand the properties.**
  - **Multiply two factors of up to four digits each.**
  - **Write numbers in expanded form using multiplication.**
  - **Estimate a product.**
  - **Solve word problems involving multiplication.**





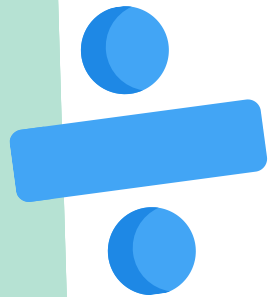
# Division

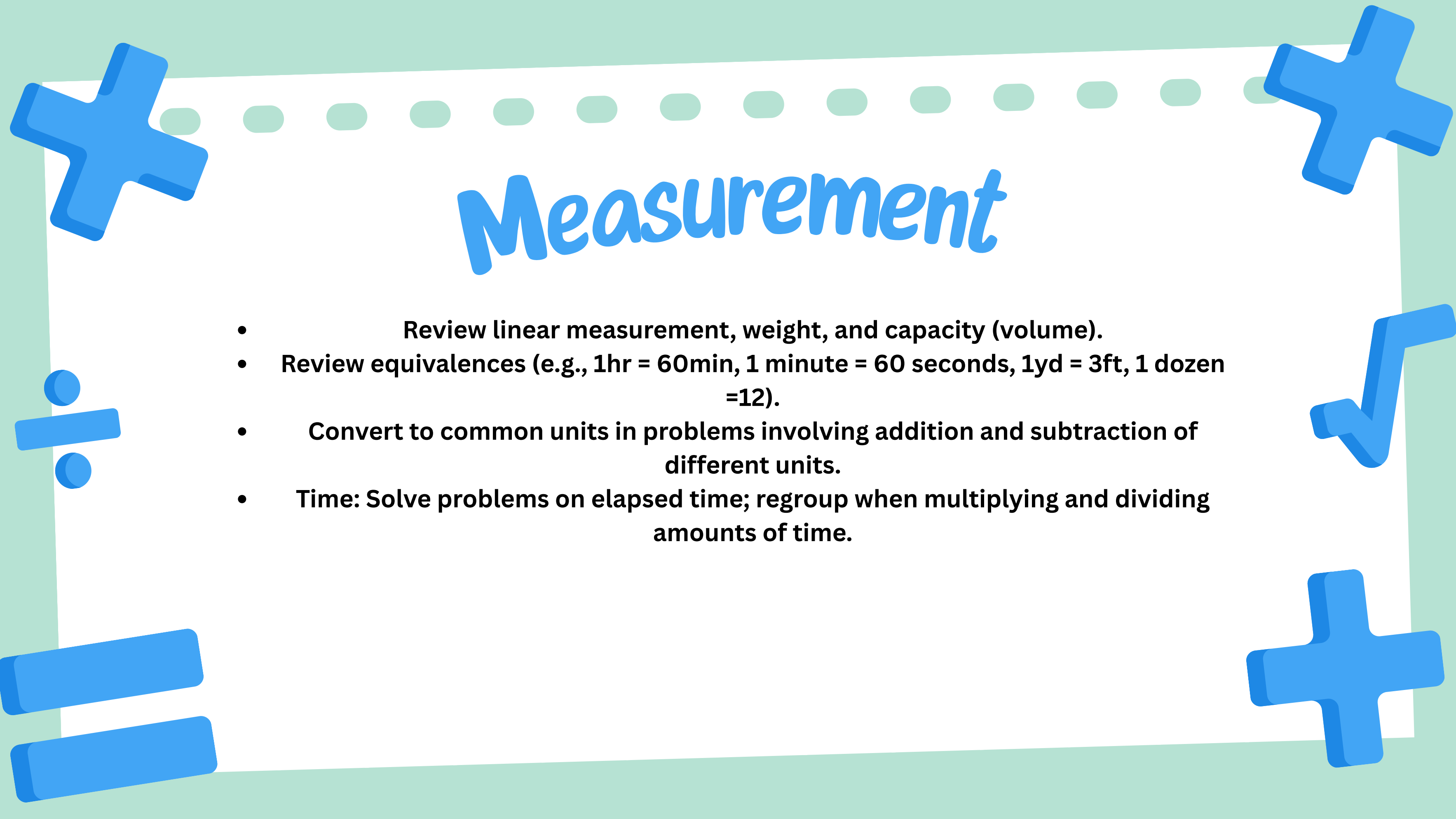
- Understand multiplication and division as inverse operations.
  - Know what it means for one number to be “divisible” by another number.
  - Know that you cannot divide by 0; that any number divided by 1 = that number.
  - Estimate the quotient.
  - Know how to move the decimal point when dividing by 10, 100, or 1,000.
  - Divide dividends up to four digits by one-digit, two-digit, and three-digit divisors.
  - Solve division problems with remainders; round a repeating decimal quotient.
  - Check division by multiplying (and adding remainder).
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# Solving Problems and Equations

- Solve word problems with multiple steps.
- Solve problems with more than one operation.





# Measurement

- Review linear measurement, weight, and capacity (volume).
- Review equivalences (e.g., 1hr = 60min, 1 minute = 60 seconds, 1yd = 3ft, 1 dozen =12).
- Convert to common units in problems involving addition and subtraction of different units.
- Time: Solve problems on elapsed time; regroup when multiplying and dividing amounts of time.

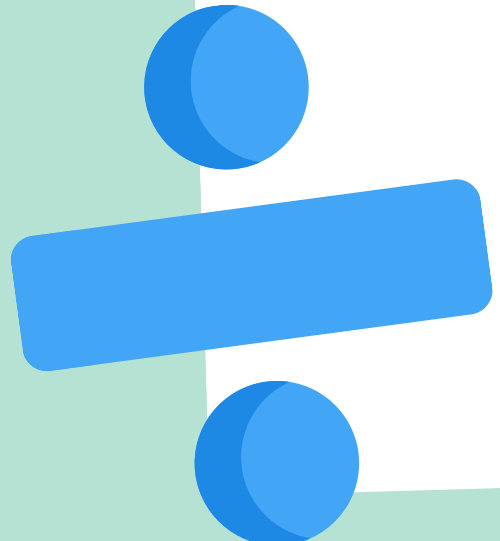


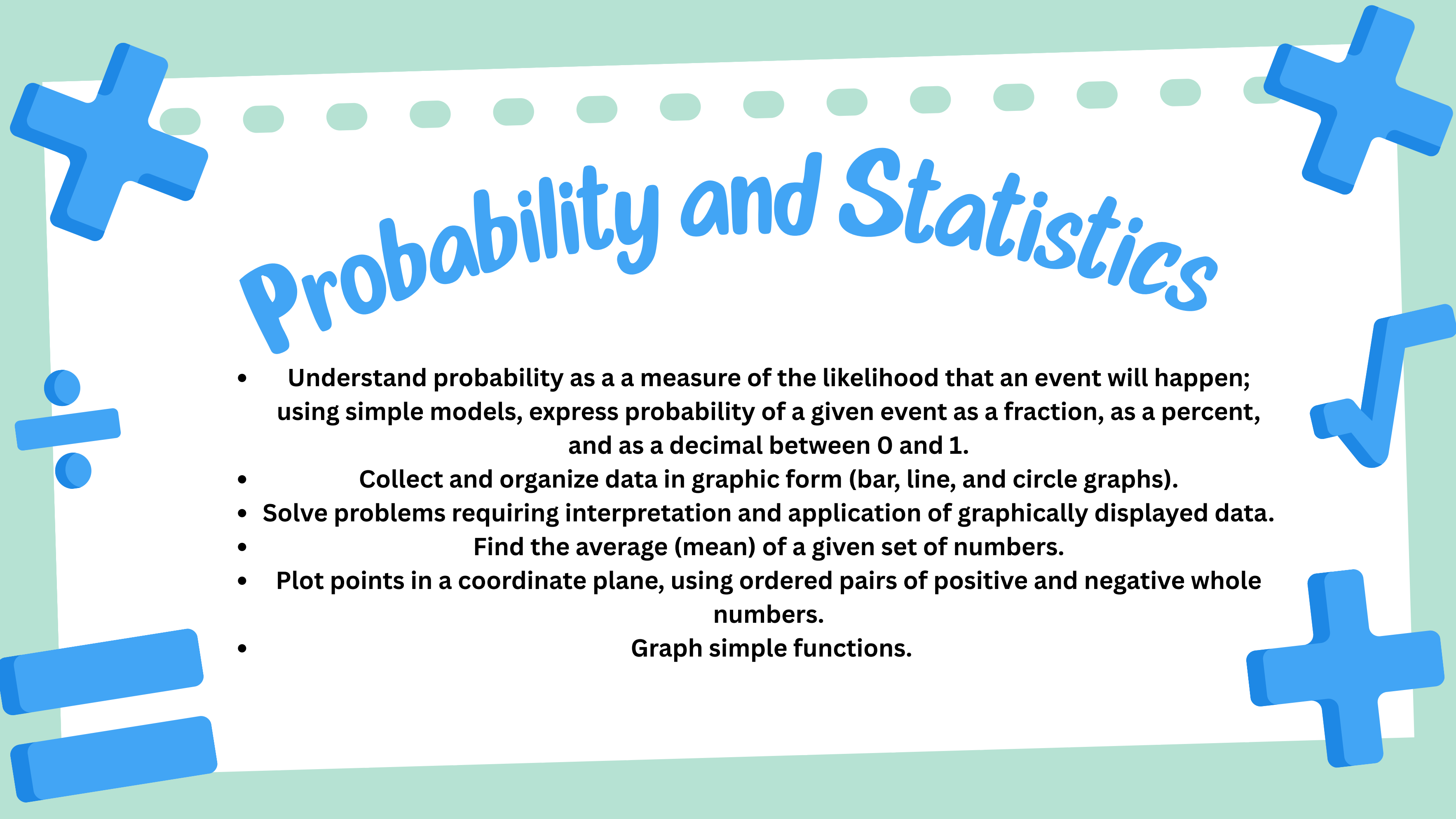
# Geometry

- Identify and draw points, segments, rays, lines.
- Identify and draw lines: horizontal; vertical; perpendicular; parallel; intersecting.
- Measure the degrees in an angle, and know that:
  - Right angle = 90 degrees
  - Acute angle = Less than 90 degrees
  - Obtuse angle = Greater than 90 degrees
  - Straight angle = 180 degrees
- Identify and construct different types of triangles: equilateral, right, isosceles.
- Know what it means for triangles to be congruent.
- Identify polygons:
  - Triangle, Quadrilateral, Pentagon, Hexagon, Octagon, Parallelogram, Trapezoid, Rhombus, Rectangle, Square



# Geometry

- Know that regular polygons have sides of equal length and angles of equal measure.
  - **Circles**
    - Identify radius (plural: radii) and diameter (radius =  $\frac{1}{2}$  diameter).
    - Using a compass, draw circles with a given diameter or radius.
    - Find the circumference of a circle using the formula  $C = \pi d$ , and  $C = 2\pi r$ , using 3.14 as the value of pi.
  - **Area**
    - Review the formula for the area of a rectangle (Area=length x width) and solve problems involving finding area in a variety of square units.
    - Find the area of triangles, using the formula  $A = \frac{1}{2} (bh)$ .
    - Find the area of a parallelogram using the formula  $A=bh$ .
    - Find the area of an irregular figure (such as a trapezoid) by dividing into regular figures which you know how to find the area.
    - Compute volume of rectangular prisms in cubic units using the formula  $V=lwh$ .
    - Find the surface area of a rectangular prism.
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# Probability and Statistics

- Understand probability as a measure of the likelihood that an event will happen; using simple models, express probability of a given event as a fraction, as a percent, and as a decimal between 0 and 1.
- Collect and organize data in graphic form (bar, line, and circle graphs).
- Solve problems requiring interpretation and application of graphically displayed data.
- Find the average (mean) of a given set of numbers.
- Plot points in a coordinate plane, using ordered pairs of positive and negative whole numbers.
- Graph simple functions.



# Pre-Algebra

- Recognize variables and solve basic equations using variables.
  - Write and solve equations for word problems.
  - Find the value of an expression given the replacement values for the variables, for example: What is  $7 - c$  if  $c$  is 3.5?
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