****Study Resources for the *Praxis*® Middle School Mathematics Test (5169)****

The links below allow you to connect content topics  
 on this *Praxis*® test directly to free Khan Academy study resources.

| *Praxis* Middle School Mathematics (5169)  Content Topics | Study Resources |
| --- | --- |
| I. Number and Operations | Lesson |
| Understands operations and properties of the real number system | |
| Solve problems using addition, subtraction, multiplication, and division of rational numbers. | [Addition and subtraction](https://www.khanacademy.org/math/arithmetic-home/addition-subtraction)  [Rational number arithmetic](https://www.khanacademy.org/math/7th-grade-illustrative-math/unit-5-rational-number-arithmetic) |
| Apply the order of operations. | [Intro to order of operations](https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations) |
| Given operations on a number system, determine whether the properties hold (e.g., commutative, associative, distributive). | [Commutative law of addition](https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-arithmetic-properties/v/commutative-law-of-addition)  [Associative property of multiplication](https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-arithmetic-properties/v/associate-property-of-multiplication)  [Distributive property over addition](https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-ditributive-property/v/the-distributive-property) |
| Compare, classify, and order real numbers. | [Ordering rational numbers](https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-negative-number-topic/cc-6th-comparing-negative-numbers/v/ordering-rational-numbers) |
| Perform operations involving exponents, including negative exponents. | [Exponent properties review](https://wwwkhanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-exponent-properties/a/exponent-properties-review) |
| Simplify and approximate radicals. |  |
| Represent and compare very large and very small numbers (e.g., scientific notation). | [Introduction to scientific notation](https://www.khanacademy.org/math/pre-algebra/pre-algebra-exponents-radicals/pre-algebra-scientific-notation/v/scientific-notation-old) |
| Understands the relationships among fractions, decimals, and percents | |
| 1. Convert among fractions, decimals, and percents. | [Convert fractions to percents](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-decimal-conversions/e/converting-fraction-to-percents)  [Converting percents to decimals & fractions example](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-decimal-conversions/v/representing-a-number-as-a-decimal-percent-and-fraction) |
| Represent fractions, decimals, and percents using various models. | [Fractions, decimals, & percentages](https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-fractions-decimals) [Solving percent problems](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-word-problems/v/solving-percent-problems) |
| Knows how to use ratio reasoning to solve problems | |
| 1. Apply the concept of a ratio and use ratio language and notation to describe a relationship between two quantities. | [Ratios, rates, and proportions — Basic example](https://www.khanacademy.org/test-prep/sat/sat-math-practice/new-sat-problem-solving-data-analysis/v/sat-math-q1-easier)  [Basic ratios](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-ratios-intro/e/representing-ratios) |
| Compute unit rates. | [Unit rates](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-rates/e/unit-rates) |
| Use ratio reasoning to convert rates. | [Rate conversion](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:working-units/x2f8bb11595b61c86:rate-conversion/e/rate-conversion) |
| Solve problems involving scale factors. | [Solving a scale drawing word problem](https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-geometry/cc-7th-scale-drawings/v/scale-drawing-example-2) |
| Knows how to use proportional relationships to solve real-world problems | |
| 1. Recognize and represent proportional and inversely proportional relationships between two quantities. |  |
| Use proportional relationships to solve multistep ratio and percent problems. | [Proportion word problems](https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-write-and-solve-proportions/e/constructing-proportions-to-solve-application-problems) |
| Knows how to use basic concepts of number theory (e.g., divisibility, prime factorization, multiples) to solve problems | |
| 1. Recognize relationships involving prime and composite numbers. | [Prime numbers](https://www.khanacademy.org/math/pre-algebra/pre-algebra-factors-multiples/pre-algebra-prime-numbers/v/prime-numbers)  [Recognizing prime and composite numbers](https://www.khanacademy.org/math/pre-algebra/pre-algebra-factors-multiples/pre-algebra-prime-numbers/v/recognizing-prime-numbers) |
| Solve problems involving odd or even numbers. | [Intro to even and odd numbers](https://www.khanacademy.org/math/cc-third-grade-math/arithmetic-patterns-and-problem-solving/imp-patterns-in-arithmetic/v/introduction-to-even-and-odd) |
| Solve problems involving factors, multiples, and divisibility. | [Factors and multiples](https://www.khanacademy.org/math/pre-algebra/pre-algebra-factors-multiples/pre-algebra-prime-numbers/v/recognizing-prime-numbers) |
| Knows a variety of strategies to determine the reasonableness of results | |
| 1. Recognize the reasonableness of results within the context of a given problem | Reasonable samples |
| Test the reasonableness of results using estimation. | [2-step estimation problem: marbles](https://www.khanacademy.org/math/3rd-engage-ny/engage-3rd-module-1/3rd-module-1-topic-f/v/marbles-for-friends)  [Estimating lengths](https://www.khanacademy.org/math/early-math/cc-early-math-measure-data-topic/cc-early-math-compare-estimate-length/v/estimating-lengths) |
| Estimate absolute and relative error in the numerical answer to a problem. |  |
| II. Algebra | Lesson |
| 1. Knows how to evaluate and manipulate algebraic expressions, equations, and formulas | |
| 1. Perform arithmetic operations on polynomials. | [Polynomial expressions, equations, & functions](https://www.khanacademy.org/math/algebra-home/alg-polynomials)  [Adding polynomials](https://www.khanacademy.org/math/algebra-home/alg-polynomials/alg-adding-and-subtracting-polynomials/v/adding-and-subtracting-polynomials-1) |
| Manipulate and perform arithmetic operations on problems involving rational expressions. | [Rational functions](https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:rational) |
| Evaluate, manipulate, and compare algebraic expressions involving radicals and exponents, including negative exponents. | [Exponential & logarithmic functions](https://www.khanacademy.org/math/algebra-home/alg-exp-and-log#miscellaneous-radicals) |
| Use variables to construct and solve equations in real-world contexts. | [Polynomial word problem: area of a window](https://www.khanacademy.org/math/algebra-home/alg-polynomials/alg-modeling-with-polynomials/v/multiplying-polynomials-2) |
| Translate verbal relationships into algebraic equations or expressions. | [Writing basic expressions word problems](https://www.khanacademy.org/math/pre-algebra/pre-algebra-equations-expressions/pre-algebra-alg-expression-word-problems/e/writing-expressions-with-variables-word-problems)  [Algebraic word problems](https://www.khanacademy.org/test-prep/praxis-math/praxis-math-lessons/praxis-math-algebra/a/gtp--praxis-math--article--algebraic-word-problems--lesson) |
| 1. Knows how to recognize and represent linear relationships algebraically | |
| 1. Determine the equation of a line. | [Linear equations in any form](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:summary-forms-of-two-variable-linear-equations/e/writing-the-equation-of-a-line-in-any-form) |
| Recognize and use the basic forms of linear equations. | [Forms of linear equations review](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:forms-of-linear-equations/x2f8bb11595b61c86:summary-forms-of-two-variable-linear-equations/a/forms-of-linear-equations-review) |
| 1. Knows how to solve linear equations and inequalities | |
| 1. Solve one-variable linear equations and inequalities algebraically and represent solutions on a number line. | [Solving linear equations and linear inequalities — Basic example](https://www.khanacademy.org/test-prep/sat/sat-math-practice/new-sat-heart-of-algebra/v/sat-math-h6-easier) |
| Knows how to represent and solve nonlinear equations and inequalities | |
| 1. Solve one-variable nonlinear equations and inequalities (e.g., absolute value, quadratic) algebraically and represent solutions on a number line. | [Quadratic inequalities](https://www.khanacademy.org/math/algebra-home/alg-quadratics/alg-quadratic-inequalities/v/quadratic-inequality-example)  [Solving absolute value inequalities 1](https://www.khanacademy.org/math/algebra-home/alg-absolute-value/alg-absolute-value-inequalities/v/absolute-value-inequalities-example-1)  [Quadratic functions & equations](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations) |
| Knows how to represent and solve systems of equations and inequalities | |
| 1. Represent and solve systems of linear equations and inequalities with two variables algebraically and graphically. | [Solving systems of linear equations — Basic example](https://www.khanacademy.org/test-prep/sat/sat-math-practice/new-sat-heart-of-algebra/v/sat-math-h7-easier) |
| Knows how to recognize and represent simple sequences or patterns (e.g., arithmetic, geometric) | |
| 1. Evaluate, extend, or algebraically represent rules that involve number patterns. | [Sequences & series intro](https://www.khanacademy.org/math/old-integral-calculus/series-ic)  [Sequences](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:sequences) |
| 1. Describe or extend patterns involving shapes or figures. | [Inductive reasoning](https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/inductive-reasoning-2)  [Using inductive reasoning (example 2)](https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/u03-l1-t1-we2-inductive-patterns) |
| 1. Explore patterns in order to make conjectures, predictions, or generalizations. | [Inductive & deductive reasoning](https://www.khanacademy.org/math/algebra-home/alg-series-and-induction/alg-deductive-and-inductive-reasoning/v/deductive-reasoning-1) |
| III. Functions and Their Graphs | Lesson |
| 1. Knows how to identify, define, and evaluate functions | |
| 1. Know function notation. | [Function notation example](https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-functions-and-function-notation/v/understanding-function-notation-example-3) |
| Given a set of conditions, decide whether they represent a function. | [Testing if a relationship is a function](https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/cc-8th-function-intro/v/testing-if-a-relationship-is-a-function) |
| Evaluate functions for given values (algebraically, graphically, tabular). |  |
| 1. Knows how to determine and interpret the domain and the range of a function numerically, graphically, and algebraically | |
| 1. Determine the domain and range of a given table of values. | [What is the domain of a function?](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:introduction-to-the-domain-and-range-of-a-function/v/domain-of-a-function-intro) |
| Determine the domain and range from a given graph of a function. | [Domain and range from graph](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:introduction-to-the-domain-and-range-of-a-function/e/domain_and_range_0.5) |
| Determine the domain and range of a given function. | [Determine the domain of functions](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:determining-the-domain-of-a-function/e/domain-of-algebraic-functions) |
| Interpret domain and range in real-world settings. | [Function domain word problems](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:determining-the-domain-of-a-function/e/interpreting-domain) |
| Understands basic characteristics of linear functions (e.g., slope, intercepts) | |
| 1. Determine the slope of a given linear function. | [Worked example: slope from graph](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:slope/v/slope-of-a-line) |
| Interpret slope as a constant rate of change. | [Introduction to average rate of change](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:average-rate-of-change/v/introduction-to-average-rate-of-change) |
| Determine the x- and y-intercepts of a given linear function. | [Intro to intercepts](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:x-intercepts-and-y-intercepts/v/introduction-to-intercepts) |
| Interpret the x- and y-intercepts of a given linear function. | [Two-variable linear equations intro](https://www.khanacademy.org/tag/x-and-y-intercepts)  [Worked example: intercepts from an equation](https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-x-and-y-intercepts/v/x-and-y-intercepts-2) |
| Understands the relationships among functions, tables and graphs | |
| 1. Determine and interpret the x- and y-intercepts of any given function. | [Intercepts from a graph](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:x-intercepts-and-y-intercepts/e/linear-function-intercepts) |
| Given a graph (e.g., linear, quadratic, absolute value, or simple exponential), select an equation that best represents the graph. | [Recognizing functions from graph](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:functions/x2f8bb11595b61c86:recognizing-functions/v/graphical-relations-and-functions) |
| Determine the graphical properties and sketch a graph given an equation of a linear, quadratic, absolute value, or simple exponential function. | [Two-variable linear equations intro](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:linear-equations-graphs/x2f8bb11595b61c86:x-intercepts-and-y-intercepts/e/linear-function-intercepts) [Graphing quadratics: standard form](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:standard-form-quadratic/v/graphing-a-parabola-using-roots-and-vertex)  [Graph absolute value functions](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:absolute-value-piecewise-functions/x2f8bb11595b61c86:graphs-of-absolute-value-functions/e/graphs-of-absolute-value-functions)  [Exponential function graph](https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:exponential-growth-decay/x2f8bb11595b61c86:graphs-of-exponential-growth/v/graphing-exponential-functions) |
| Knows how to analyze and represent functions that model given information | |
| 1. Develop a model (e.g., graph, equation, table) of a given set of conditions. | [Modeling with tables, equations, and graphs](https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-linear-functions-modeling/a/modeling-with-tables-equations-and-graphs) |
| Evaluate whether a particular mathematical model (e.g., graph, equation, table) can be used to describe a given set of conditions. | [Algebraic modeling](https://www.khanacademy.org/math/algebra-home/alg-modeling) |
| IV. Geometry and Measurement | Lesson |
| 1. Knows how to solve problems involving perimeter, area, surface area, and volume | |
| 1. Calculate and interpret perimeter and area of geometric shapes. | [Area and perimeter](https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter) |
| Calculate and interpret surface area and volume of geometric shapes. | [Volume and surface area](https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa) |
| Use two-dimensional representations of three-dimensional objects to visualize and solve problems. | [Intro to nets of polyhedra](https://www.khanacademy.org/math/basic-geo/basic-geo-volume-sa/basic-geometry-surface-area/v/nets-of-polyhedra) |
| 1. Understands the concepts of similarity and congruence | |
| 1. Use similarity and congruence to solve problems with two-dimensional and three-dimensional figures. | [Using similar & congruent triangles](https://www.khanacademy.org/math/geometry/hs-geo-similarity/hs-geo-similar-and-congruent-triangles/v/finding-area-using-similarity-and-congruence) |
| 1. Understands properties of lines (e.g., parallel, perpendicular, intersecting) and angles | |
| 1. Solve problems involving parallel, perpendicular, and intersecting lines. | [Parallel & perpendicular lines intro](https://www.khanacademy.org/math/basic-geo/basic-geo-lines/parallel-perp/v/parallel-and-perpendicular-lines-intro) |
| Apply angle relationships (e.g., supplementary, vertical, alternate interior) to solve problems | [Identifying supplementary, complementary, and vertical angles](https://www.khanacademy.org/math/geometry-home/geometry-angles/geometry-vert-comp-supp/e/identifying-supplementary-complementary-vertical) |
| 1. Understands properties of triangles | |
| 1. Solve problems that involve sides (e.g., Pythagorean Theorem) and angles. | [Pythagorean theorem](https://www.khanacademy.org/math/basic-geo/basic-geometry-pythagorean-theorem) |
| Solve problems that involve medians, midpoints, and altitudes. | [Triangle medians & centroids](https://www.khanacademy.org/math/geometry-home/triangle-properties/medians-centroids/v/triangle-medians-and-centroids) |
| Solve problems involving special triangles (e.g., isosceles, equilateral, right). | [Isosceles & equilateral triangles problems](https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-working-with-triangles/v/equilateral-and-isosceles-example-problems) |
| 1. Understands properties of quadrilaterals (e.g., rectangle, rhombus, trapezoid) and other polygons | |
| 1. Know geometric properties of various quadrilaterals (e.g., parallelogram, trapezoid) | [Quadrilaterals](https://www.khanacademy.org/math/geometry-home/quadrilaterals-and-polygons) |
| Know relationships among quadrilaterals. | [Intro to quadrilateral](https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-quadrilaterals/v/quadrilateral-overview) |
| Solve problems involving angles and diagonals. | [Proof: Diagonals of a parallelogram](https://www.khanacademy.org/math/geometry/hs-geo-congruence/hs-geo-quadrilaterals-theorems/v/proof-diagonals-of-a-parallelogram-bisect-each-other) |
| Solve problems involving polygons with more than four sides. | [Polygons review](https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-properties-shapes/a/polygons-review) |
| 1. Understands properties of circles | |
| 1. Solve problems involving circumference and area of a circle. | [Radius, diameter, circumference & π](https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/area-circumference-circle/v/circles-radius-diameter-and-circumference)v |
| Solve problems involving diameter or radius of a circle. |
| Solve basic problems involving central angles, tangents, arcs, and sectors. | [Circles](https://www.khanacademy.org/math/geometry-home/cc-geometry-circles)  [Area of a sector](https://www.khanacademy.org/math/geometry/hs-geo-circles/hs-geo-sectors/v/area-of-a-sector-given-a-central-angle) |
| 1. Knows how to interpret geometric relationships in the xy-plane (e.g., transformations, distance, midpoint) | |
| 1. Use coordinate geometry to represent and examine the properties of geometric shapes (e.g., Pythagorean theorem, area of rectangle). | [Coordinate plane](https://www.khanacademy.org/math/geometry-home/geometry-coordinate-plane) |
| Determine the distance between two points. | [Distance formula](https://www.khanacademy.org/math/basic-geo/basic-geometry-pythagorean-theorem/pythagorean-theorem-distance/v/distance-formula) |
| Determine the midpoint of two points. | [Midpoint formula](https://www.khanacademy.org/math/geometry/hs-geo-analytic-geometry/hs-geo-distance-and-midpoints/v/midpoint-formula) |
| Interpret and solve problems involving transformations. | [Rigid transformations intro](https://www.khanacademy.org/math/basic-geo/basic-geo-transformations-congruence/transformations-intro-basic-geo/v/introduction-to-transformations) |
| 1. Understands systems of measurement (e.g., metric, customary) | |
| 1. Solve measurement and estimation problems involving time, length, temperature, volume, and mass in both U.S. customary and metric systems, where appropriate. | [U.S. customary and metric units](https://www.khanacademy.org/math/cc-fifth-grade-math/imp-measurement-and-data-3/imp-unit-conversion/v/u-s-customary-and-metric-units) |
| Convert units within each system. | [Conversion between metric units](https://www.khanacademy.org/math/geometry-home/geometry-volume-surface-area/geometry-volume-rect-prism/v/conversion-between-metric-units)  [U.S. customary and metric units](https://www.khanacademy.org/math/cc-fifth-grade-math/imp-measurement-and-data-3/imp-unit-conversion/v/u-s-customary-and-metric-units) |
| 1. Is familiar with how geometric constructions are made | |
| 1. Identify formal geometric constructions made with a variety of tools and methods (e.g., copying a segment, bisecting an angle, constructing parallel and perpendicular lines). | [CA Geometry: Compass construction](https://www.khanacademy.org/math/geometry-home/geometry-miscellaneous/geometry-worked-examples/v/ca-geometry-compass-construction) |
| V. Probability, Statistics, and Discrete Mathematics | Lesson |
| 1. Knows how to interpret and analyze data presented in various forms | |
| 1. Analyze and interpret various displays of data (e.g., box plots, histograms, scatter plots, stem-and-leaf plots). | [Reading and interpreting data](https://www.khanacademy.org/math/pre-algebra/pre-algebra-math-reasoning) |
| Draw conclusions based on graphical displays (e.g., misleading representation of data, line of best fit, interpolation). | [Estimating the line of best fit exercise](https://www.khanacademy.org/math/probability/scatterplots-a1/estimating-trend-lines/v/estimating-the-line-of-best-fit-exercise) |
| 1. Knows how to represent data in various forms | |
| 1. Construct circle graphs, bar graphs, line graphs, histograms, scatter plots, double bar graphs, double line graphs, stem-and-leaf plots, box plots, and line plots/dot plots. | [Representing data](https://www.khanacademy.org/math/pre-algebra/pre-algebra-math-reasoning/pre-algebra-representing-data/v/ways-to-represent-data)  [Comparing data displays](https://www.khanacademy.org/math/pre-algebra/pre-algebra-math-reasoning/pre-algebra-frequency-dot-plot/e/comparing-data-displays)  [Frequency tables & dot plots](https://www.khanacademy.org/math/pre-algebra/pre-algebra-math-reasoning/pre-algebra-frequency-dot-plot/v/frequency-tables-and-dot-plots) |
| Choose an appropriate graph based on data. | [Constructing a box plot](https://www.khanacademy.org/math/probability/data-distributions-a1/box--whisker-plots-a1/v/constructing-a-box-and-whisker-plot)  [Representing data](https://www.khanacademy.org/math/pre-algebra/pre-algebra-math-reasoning/pre-algebra-representing-data/v/ways-to-represent-data) |
| 1. Knows how to develop, use, and evaluate probability models | |
| 1. Use counting techniques, including the counting principle, to answer questions involving a finite sample space. | [Counting, permutations, and combinations](https://www.khanacademy.org/math/statistics-probability/counting-permutations-and-combinations) |
| Solve probability problems involving independent and dependent events. | [Basic theoretical probability](https://www.khanacademy.org/tag/basic-probability) |
| Solve problems using geometric probability. | [Geometric probability](https://www.khanacademy.org/math/ap-statistics/random-variables-ap/geometric-random-variable/e/geometric-probability) |
| 1. Understands concepts associated with measures of central tendency and dispersion (spread) | |
| 1. Solve for the mean and weighted average of a given set of data. | [Averages](https://www.khanacademy.org/math/algebra-home/alg-basic-eq-ineq/alg-old-school-equations/v/averages)  [Weighted averages](https://www.khanacademy.org/partner-content/pixar/environment-modeling-2/mathematics-of-parabolas2-ver2/e/weighted-averages-on-a-line)  [Mean, median, & mode example](https://www.khanacademy.org/math/ap-statistics/summarizing-quantitative-data-ap/measuring-center-quantitative/v/mean-median-and-mode) |
| Determine and interpret mean, median, and mode in a variety of problems. | [Mean, median, & mode example](https://www.khanacademy.org/math/ap-statistics/summarizing-quantitative-data-ap/measuring-center-quantitative/v/mean-median-and-mode) |
| Determine and interpret common features of a data set (e.g., range and outliers). | [Range and mid-range](https://www.khanacademy.org/math/statistics-probability/summarizing-quantitative-data/other-measures-of-spread/v/range-and-mid-range)  [Identifying outliers](https://www.khanacademy.org/math/ap-statistics/summarizing-quantitative-data-ap/stats-box-whisker-plots/e/identifying-outliers) |
| Choose an appropriate measure of central tendency to represent a given data set. | [Choosing the "best" measure of center](https://www.khanacademy.org/math/probability/data-distributions-a1/summarizing-center-distributions/a/choosing-the-best-measure-of-center) |
| 1. Knows how to model and solve problems using simple diagrams, flowcharts, or algorithms | |
| 1. Construct, use, and interpret simple diagrams (e.g., Venn diagrams, flowcharts) to solve problems. | [Probability with Venn diagrams](https://www.khanacademy.org/math/ap-statistics/probability-ap/probability-addition-rule/v/probability-with-playing-cards-and-venn-diagrams)  [Intersection and union of sets](https://www.khanacademy.org/math/on-grade-engageny/engageny-alg2/alg2-4/alg2-4a-venn-probability-rules/v/intersection-and-union-of-sets) |
| Apply a given algorithm to solve a problem. | [What is an algorithm and why should you care?](https://www.khanacademy.org/partner-content/dartmouth-college/dartmouth-algorithms/v/what-are-algorithms) |