

Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

Partition circles, and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

TABE Test Level M

Areas of Emphasis

High
Medium
Low

Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real world problems.
Relate volume to the operations of multiplication and addition and solve real world problems.
Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.
Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
Read, write, and compare decimals to thousandths.
Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
Apply and extend previous understanding of multiplication to multiply a fraction by a whole number.
Apply and extend previous understanding of multiplication to multiply a fraction or whole number by a fraction.
Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, $<$, and justify the conclusions.
Apply and extend previous understandings of division to divide unit fractions by whole number and whole numbers by unit fractions.
Interpret a multiplication equation as a comparison.
Multiply or divide to solve word problems involving multiplicative comparison.
Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures.
Understand the concept of a unit rate a/b associated with a ratio $a:b$ with b not equal to 0, and use rate language in the context of a ratio relationship.
Fluently divide multi-digit numbers using the standard algorithm.
Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
Make a line plot to display a data set of measurement in fractions of a unit. Use operations on fractions to solve problems involving information presented in line plots.
Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
Use place value understanding to round multi-digit whole numbers to any place.
Fluently add and subtract multi-digit whole numbers using the standard algorithm.
Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit number, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Fluently multiply multi-digit whole numbers using the standard algorithm.
Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Explain why a fraction a/b is equivalent to a fraction by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
Interpret multiplication as scaling (resizing).
Solve real world problems involving multiplication of fractions and mixed numbers.
Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions.
Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
Find all factor pairs for a whole number in the range 1 – 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1 – 100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1 – 100 is prime or composite.
Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines arranged to coincide with the 0 on each line and a given point in the

place located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.
Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q , and x are all nonnegative rational numbers.
Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
Write, read, and evaluate expressions in which letters stand for numbers.
Apply the properties to generate equivalent expressions.
Identify when two expressions are equivalent.
Understand solving an equation or inequality as a process of answering a question. Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
Interpret and compute quotients of fractions, and solve word problems involving division of fraction by fractions.
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole number 1 – 100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
Understand that a set of data collected to answer a statistical question has a distribution when can be described by its center, spread, and overall shape.
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

TABE Test Level D

Areas of Emphasis

High
Medium
Low

Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about quantities.
Recognize and represent proportional relationships between quantities.
Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
Describe qualitatively the functional relationship between two quantities by analyzing a graph.
Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
Use ratio and rate reasoning to solve real-world and mathematical problems.
Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
Understand ordering and absolute value of rational numbers.
Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
Find probabilities of compound events using organized lists, tables, tree diagrams, and simulations.
Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of

change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
Know and apply the properties of integer exponents to generate equivalent numerical expressions.
Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.
Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationship represented in different ways.
Analyze and solve pairs of simultaneous linear equations.
Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
Use proportional relationships to solve multistep ratio and percent problems.
Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distance between points with the same first coordinate or the same second coordinate.
Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.

Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples of the same size to gauge the variation in estimates or predication.
Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variable collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.
Summarize numerical data sets in relation to their context.
Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

TABE Test Level A

Areas of Emphasis

High
Medium
Low

Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve.
Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Apply concepts of density based on area and volume in modeling situations.
Represent data with plots on the real number line.
Interpret differences in shapes, center, and spread in the context of the data sets, accounting for possible effects of extreme data points.
Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data. Recognize possible associations and trends in the data.
Interpret the slope and the intercept of a linear model in the context of the data.
Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities.
Calculate and interpret the average rate of change of a function over a specified interval. Estimate the rate of change from a graph.
Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.
Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.
Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables.
Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distant along a line, and distance around a circular arc.

Distinguish between correlation and causation.
Understand that a function from one set to another set assigns to each element of the domain exactly one element of the range.
Use properties of exponents to interpret expressions for exponential functions.
Compare properties of two functions each represented in a different way.
Write a function that describes a relationship between two quantities.
Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
Interpret the parameters in a linear or exponential function in terms of a context.
Interpret parts of an expression, such as terms, factors, and coefficients.
Use the structure of an expression to identify ways to rewrite it.
Factor a quadratic expression to reveal the zeroes of the function it defines.
Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution.
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Solve quadratic equations in one variable.
Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Adapted from: <https://tabetest.com/resources-2/testing-information/blue-prints/>

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