Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

OGT Lesson 01 - Ohio Graduation Test (Practice Test)

OGT Lesson 02 - Scientific Notation, Order of Operations, Evaluate Expressions

Math 10 - OGT Lesson 02 - Scientific Notation, Order of Operations, Evaluate Expressions

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
A. Use scientific notation to express large numbers and numbers less than one. (08-10)
01. Use scientific notation to express large numbers and small numbers between 0 and 1. (08)
C. Apply properties of operations and the real number system, and justify when they hold for a set of numbers. (08-10)
04. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations. (08)
F. Explain the effects of operations on the magnitude of quantities. (08-10)
03. Explain the effects of operations such as multiplication or division, and of computing powers and roots on the magnitude of quantities. (09)
G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (08-10)
06. Estimate, compute and solve problems involving rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions. (08)
I. Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents. (08-10)
03. Apply order of operations to simplify expressions and perform computations involving integer exponents and radicals. (08)
08. Add, subtract, multiply, divide and compare numbers written in scientific notation. (08)

OGT Lesson 03 - Subsets of the Real Number System

Math 10 - OGT Lesson 03 - Subsets of the Real Number System

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
B. Identify subsets of the real number system. (08-10)
02. Recognize that natural numbers, whole numbers, integers, rational numbers and irrational numbers are subsets of the real number system. (08)
D. Connect physical, verbal and symbolic representations of integers, rational numbers and irrational numbers. (08-10)
01. Connect physical, verbal and symbolic representations of irrational numbers; e.g., construct (10)
H. Find the square root of perfect squares, and approximate the square root of non-perfect squares. (08-10)
07. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., (08)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

OGT Lesson 04 - Number Properties

Math 10 - OGT Lesson 04 - Number Properties

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
C. Apply properties of operations and the real number system, and justify when they hold for a set of numbers. (08-10)
04. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations. (08)
G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (08-10)
04. Demonstrate fluency in computations using real numbers. (09)

OGT Lesson 05 - Compare Real Numbers

Math 10 - OGT Lesson 05 - Compare Real Numbers

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
E. Compare, order and determine equivalent forms of real numbers. (08-10)
02. Compare, order and determine equivalent forms for rational and irrational numbers. (09)
G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (08-10)
05. Determine when an estimate is sufficient and when an exact answer is needed in problem situations, and evaluate estimates in relation to actual answers; e.g., very close, less than, greater than. (08)

OGT Lesson 06 - Effects of Operations on the Magnitude of Quantities

Math 10 - OGT Lesson 06 - Effects of Operations on the Magnitude of Quantities

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
F. Explain the effects of operations on the magnitude of quantities. (08-10)
03. Explain the effects of operations such as multiplication or division, and of computing powers and roots on the magnitude of quantities. (09)
G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (08-10)
04. Demonstrate fluency in computations using real numbers. (09)

OGT Lesson 07 - Ratio, Proportion, Percent

Math 10 - OGT Lesson 07 - Ratio, Proportion, Percent

Standard Benchmark and Indicator

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

S01. Number, Number Sense and Operations
G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions. (08-10)
04. Demonstrate fluency in computations using real numbers. (09)
06. Estimate, compute and solve problems involving rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions. (08)

OGT Lesson 08 - Square Roots and Radicals

Math 10 - OGT Lesson 08 - Square Roots and Radicals

Standard Benchmark and Indicator
S01. Number, Number Sense and Operations
C. Apply properties of operations and the real number system, and justify when they hold for a set of numbers. (08-10)
04. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations. (08)
H. Find the square root of perfect squares, and approximate the square root of non-perfect squares. (08-10)
07. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., (08)
I. Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents. (08-10)
05. Estimate the solutions for problem situations involving square and cube roots. (09)

OGT Lesson 09 - Test Over Units One through Eight

OGT Lesson 10 - Linear, Square, and Cubic Measurements

Math 10 - OGT Lesson 10 - Linear, Square, and Cubic Measurements

Standard Benchmark and Indicator
04. the surface area of a cylinder as a function of its height and radius; (08)
04. that the volume of a pyramid (or cone) is one-third of the volume of a prism (or cylinder) with the same base area and height. (08)
C. Apply indirect measurement techniques, tools and formulas, as appropriate, to find perimeter, circumference and area of circles, triangles, quadrilaterals and

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.) (08)
D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. (08-10)
02. Use unit analysis to check computations involving measurement. (09)
05. Solve problems involving unit conversion for situations involving distances, areas, volumes and rates within the same measurement system. (09)
E. Estimate and compute various attributes, including length, angle measure, area, surface area and volume, to a specified level of precision. (08-10)
10. Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision. (08)

OGT Lesson 11 - Problem-Solving with Linear, Square and Cubic Measurements

Math 10 - OGT Lesson 11 - Problem-Solving with Linear, Square and Cubic Measurements

Standard Benchmark and Indicator
S02. Measurement
C. Apply indirect measurement techniques, tools and formulas, as appropriate, to find perimeter, circumference and area of circles, triangles, quadrilaterals and composite shapes, and to find volume of prisms, cylinders, and pyramids. (08-10)
09. Demonstrate understanding of the concepts of perimeter, circumference and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.) (08)
D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. (08-10)
03. Use the ratio of lengths in similar two-dimensional figures or three-dimensional objects to calculate the ratio of their areas or volumes respectively. (09)
05. Solve problems involving unit conversion for situations involving distances, areas, volumes and rates within the same measurement system. (09)
E. Estimate and compute various attributes, including length, angle measure, area, surface area and volume, to a specified level of precision. (08-10)
03. Use appropriate levels of precision when calculating with measurements. (08)
10. Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision. (08)

OGT Lesson 12 - Right Triangles and Trigonometry

Math 10 - OGT Lesson 12 - Right Triangles and Trigonometry

Standard Benchmark and Indicator

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. (08-10)
04. Use scale drawings and right triangle trigonometry to solve problems that include unknown distances and angle measures. (09)

OGT Lesson 13 - Coordinate Geometry and Angle Measure

Math 10 - OGT Lesson 13 - Coordinate Geometry and Angle Measure

Standard Benchmark and Indicator
S02. Measurement
D. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates. (08-10)
02. Use unit analysis to check computations involving measurement. (09)
05. Solve problems involving unit conversion for situations involving distances, areas, volumes and rates within the same measurement system. (09)
E. Estimate and compute various attributes, including length, angle measure, area, surface area and volume, to a specified level of precision. (08-10)
03. Use appropriate levels of precision when calculating with measurements. (08)
08. Find the sum of the interior and exterior angles of regular convex polygons with and without measuring the angles with a protractor. (08)
S03. Geometry and Spatial Sense
G. Prove or disprove conjectures and solve problems involving two- and three-dimensional objects represented within a coordinate system. (08-10)
03. Analyze two-dimensional figures in a coordinate plane; e.g., use slope and distance formulas to show that a quadrilateral is a parallelogram. (09)

OGT Lesson 14 - Geometric, Congruent, and Similar Figures

Math 10 - OGT Lesson 14 - Geometric, Congruent, and Similar Figures

Standard Benchmark and Indicator
S03. Geometry and Spatial Sense
B. Describe and apply the properties of similar and congruent figures; and justify conjectures involving similarity and congruence. (08-10)
01. Make and test conjectures about characteristics and properties (e.g., sides, angles, symmetry) of two-dimensional figures and three-dimensional objects.
03. Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures). (08)
C. Recognize and apply angle relationships in situations involving intersecting lines, perpendicular lines and parallel lines. (08-10)
02. Recognize the angles formed and the relationship between the angles when two lines intersect and when parallel lines are cut by a transversal. (08)
I. Use right triangle trigonometric relationships to determine lengths and angle measures. (08-10)
01. Define the basic trigonometric ratios in right triangles: sine, cosine and tangent. (09)
02. Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures. (09)

02. Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures. (09)

OGT Lesson 15 - Lines and Angle Relationships

Math 10 - OGT Lesson 15 - Lines and Angle Relationships

Standard Benchmark and Indicator
S03. Geometry and Spatial Sense
A. Formally define geometric figures. (08-10)
01. Formally define and explain key aspects of geometric figures, including: (10)
01. circles (radius, diameter, chord, circumference, major arc, minor arc, sector, segment, inscribed angle). (10)
01. interior and exterior angles of polygons; (10)
01. segments related to triangles (median, altitude, midsegment); (10)
01. points of concurrency related to triangles (centroid, incenter, orthocenter, and circumcenter); (10)
02. Recognize and explain the necessity for certain terms to remain undefined, such as point, line and plane. (10)
B. Describe and apply the properties of similar and congruent figures; and justify conjectures involving similarity and congruence. (08-10)
01. Make and test conjectures about characteristics and properties (e.g., sides, angles, symmetry) of two-dimensional figures and three-dimensional objects. (08)
C. Recognize and apply angle relationships in situations involving intersecting lines, perpendicular lines and parallel lines. (08-10)
02. Recognize the angles formed and the relationship between the angles when two lines intersect and when parallel lines are cut by a transversal. (08)

OGT Lesson 16 - Coordinate Geometry and Geometric Figures

Math 10 - OGT Lesson 16 - Coordinate Geometry and Geometric Figures

Standard Benchmark and Indicator
results. (08-10)
05. Draw the results of translations, reflections, rotations and dilations of objects in the coordinate plane, and determine properties that remain fixed; e.g., lengths
08. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane. (10)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

08. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane. (10)
09. Show and describe the results of combinations of translations, reflections and rotations (compositions); e.g., perform compositions and specify the result of a composition as the outcome of a single motion, when applicable. (10)
G. Prove or disprove conjectures and solve problems involving two- and three-dimensional objects represented within a coordinate system. (08-10)
03. Analyze two-dimensional figures in a coordinate plane; e.g., use slope and distance formulas to show that a quadrilateral is a parallelogram. (09)
I. Use right triangle trigonometric relationships to determine lengths and angle measures. (08-10)
02. Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures. (09)

OGT Lesson 17 - Right Triangle Trigonometric Relationships

Math 10 - OGT Lesson 17 - Right Triangle Trigonometric Relationships

Standard Benchmark and Indicator
S03. Geometry and Spatial Sense
I. Use right triangle trigonometric relationships to determine lengths and angle measures. (08-10)
01. Define the basic trigonometric ratios in right triangles: sine, cosine and tangent. (09)
02. Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures. (09)

OGT Lesson 18 – Semester Exam

OGT Lesson 19 - Sequences and Series

Math 10 - OGT Lesson 19 - Sequences and Series

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
A. Generalize and explain patterns and sequences in order to find the next term and the (08-10)
02. Generalize patterns and sequences by describing how to find the (08)
B. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations. (08-10)
01. Define function formally and with f((10)
D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (08-10)
03. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height. (10)

OGT Lesson 20 – Functions

Math 10 - OGT Lesson 20 - Functions

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
B. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations. (08-10)
01. Define function formally and with f((10)
03. Identify functions as linear or nonlinear based on information given in a table, graph or equation. (08)
03. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. (09)
C. Translate information from one representation (words, table, graph or equation) to another representation of a relation or function. (08-10)
01. Relate the various representations of a relationship; i.e., relate a table to graph, description and symbolic form. (08)
D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (08-10)
08. Write, simplify and evaluate algebraic expressions (including formulas) to generalize situations and solve problems. (08)
E. Analyze and compare functions and their graphs using attributes, such as rates of change, intercepts and zeros. (08-10)
04. Demonstrate the relationship among zeros of a function, roots of equations, and solutions of equations graphically and in words. (09)
05. Describe and compare characteristics of the following families of functions: linear, quadratic and exponential functions; e.g., general shape, number of roots, domain, range, rate of change, maximum or minimum. (09)
06. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y-intercept in real-world problems. (08)
F. Solve and graph linear equations and inequalities. (08-10)
08. Find linear equations that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point. (09)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)
G. Solve quadratic equations with real roots by graphing, formula and factoring. (08-10)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)

OGT Lesson 21 - Equations and Inequalities

Math 10 - OGT Lesson 21 - Equations and Inequalities

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (08-10)
05. Solve simple linear and nonlinear equations and inequalities having square roots as coefficients and solutions. (10)
06. Solve equations and inequalities having rational expressions as coefficients and solutions. (10)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

F. Solve and graph linear equations and inequalities. (08-10)
09. Solve linear equations and inequalities graphically, symbolically and using technology. (08)
H. Solve systems of linear equations involving two variables graphically and symbolically. (08-10)
07. Solve systems of linear inequalities. (10)
11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities. (10)

OGT Lesson 22 - Solving Quadratic Functions: Graphing and Formula

Math 10 - OGT Lesson 22 - Solving Quadratic Functions: Graphing and Formula

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
A. Generalize and explain patterns and sequences in order to find the next term and the (08-10)
02. Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations. (09)
B. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations. (08-10)
01. Define function with ordered pairs in which each domain element is assigned exactly one range element. (09)
03. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. (09)
C. Translate information from one representation (words, table, graph or equation) to another representation of a relation or function. (08-10)
02. Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations. (09)
F. Solve and graph linear equations and inequalities. (08-10)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)
G. Solve quadratic equations with real roots by graphing, formula and factoring. (08-10)
10. Solve quadratic equations with real roots by factoring, graphing, using the quadratic formula and with technology. (09)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)
12. Solve simple quadratic equations graphically; e.g., (08)

OGT Lesson 23 - Solving Quadratic Functions: Factoring

Math 10 - OGT Lesson 23 - Solving Quadratic Functions: Factoring

Standard Benchmark and Indicator

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

02. Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations. (09)
B. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations. (08-10)
01. Define function with ordered pairs in which each domain element is assigned exactly one range element. (09)
03. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. (09)
C. Translate information from one representation (words, table, graph or equation) to another representation of a relation or function. (08-10)
02. Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations. (09)
F. Solve and graph linear equations and inequalities. (08-10)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)
G. Solve quadratic equations with real roots by graphing, formula and factoring. (08-10)
10. Solve quadratic equations with real roots by factoring, graphing, using the quadratic formula and with technology. (09)
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. (10)
12. Solve simple quadratic equations graphically; e.g., (08)

OGT Lesson 24 - Solving Systems of Equations with Graphing and Substitution

Math 10 - OGT Lesson 24 - Solving Systems of Equations with Graphing and Substitution

Standard Benchmark and Indicator
03. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. (09)
D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (08-10)
07. Use symbolic algebra (equations and inequalities), graphs and tables to represent situations and solve problems. (08)
E. Analyze and compare functions and their graphs using attributes, such as rates of change, intercepts and zeros. (08-10)
06. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y-intercept in real-world problems. (08)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

08. Find linear equations that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point. (09)
09. Solve linear equations and inequalities graphically, symbolically and using technology. (08)
H. Solve systems of linear equations involving two variables graphically and symbolically. (08-10)
09. Solve and interpret the meaning of 2 by 2 systems of linear equations graphically, by substitution and by elimination, with and without technology. (09)
10. Solve 2 by 2 systems of linear equations graphically and by simple substitution. (08)

OGT Lesson 25 - Solving Systems of Equations with the Linear Combination Method

Math 10 - OGT Lesson 25 - Solving Systems of Equations with the Linear Combination Method

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
B. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations. (08-10)
03. Identify functions as linear or nonlinear based on information given in a table, graph or equation. (08)
03. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. (09)
D. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations. (08-10)
07. Use symbolic algebra (equations and inequalities), graphs and tables to represent situations and solve problems. (08)
E. Analyze and compare functions and their graphs using attributes, such as rates of change, intercepts and zeros. (08-10)
06. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y-intercept in real-world problems. (08)
F. Solve and graph linear equations and inequalities. (08-10)
07. Use symbolic algebra (equations and inequalities), graphs and tables to represent situations and solve problems. (08)
08. Find linear equations that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point. (09)
09. Solve linear equations and inequalities graphically, symbolically and using technology. (08)
H. Solve systems of linear equations involving two variables graphically and symbolically. (08-10)
09. Solve and interpret the meaning of 2 by 2 systems of linear equations graphically, by substitution and by elimination, with and without technology. (09)
10. Solve 2 by 2 systems of linear equations graphically and by simple substitution. (08)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

OGT Lesson 26 - Direct and Inverse Variation

Math 10 - OGT Lesson 26 - Direct and Inverse Variation

Standard Benchmark and Indicator
S04. Patterns, Functions and Algebra
H. Solve systems of linear equations involving two variables graphically and symbolically. (08-10)
11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities. (10)
I. Model and solve problem situations involving direct and inverse variation. (08-10)
13. Model and solve problems involving direct and inverse variation using proportional reasoning. (09)
14. Differentiate and explain types of changes in mathematical relationships, such as linear vs. nonlinear, continuous vs. noncontinuous, direct variation vs. inverse variation. (08)
14. Describe the relationship between slope and the graph of a direct variation and inverse variation. (09)
J. Describe and interpret rates of change from graphical and numerical data. (08-10)
13. Compute and interpret slope, midpoint and distance given a set of ordered pairs. (08)

OGT Lesson 27 - Test over Lessons 19 through 26

OGT Lesson 28 - Central Measures of Tendency

Math 10 - OGT Lesson 28 - Central Measures of Tendency

Standard Benchmark and Indicator
S05. Data Analysis and Probability
C. Compare the characteristics of the mean, median and mode for a given set of data, and explain which measure of center best represents the data. (08-10)
01. Describe measures of center and the range verbally, graphically and algebraically. (10)
05. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode. (08)
D. Find, use and interpret measures of center and spread, such as mean and quartiles, and use those measures to compare and draw conclusions about sets of data. (08-10)
04. Compare two sets of data using measures of center (mean, mode, median) and measures of spread (range, quartiles, interquartile range, percentiles). (08)

OGT Lesson 29 - Measures of Center and Spread: Quartiles and Outliers

Math 10 - OGT Lesson 29 - Measures of Center and Spread: Quartiles and Outliers

Standard Benchmark and Indicator

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

S05. Data Analysis and Probability
C. Compare the characteristics of the mean, median and mode for a given set of data, and explain which measure of center best represents the data. (08-10)
05. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode. (08)
D. Find, use and interpret measures of center and spread, such as mean and quartiles, and use those measures to compare and draw conclusions about sets of data. (08-10)
04. Compare two sets of data using measures of center (mean, mode, median) and measures of spread (range, quartiles, interquartile range, percentiles). (08)

OGT Lesson 30 - Box-and-Whisker Plots

Math 10 - OGT Lesson 30 - Box-and-Whisker Plots

Standard Benchmark and Indicator
01. Use, create and interpret scatterplots and other types of graphs as
01. Classify data as univariate (single variable) or bivariate (two variables) and as
02. Represent and analyze bivariate data using appropriate graphical displays
03. Analyze and interpret frequency distributions based on spread, symmetry,
06. Interpret the relationship between two variables using multiple graphical
B. Evaluate different graphical representations of the same data to determine
02. Evaluate different graphical representations of the same data to determine
D. Find, use and interpret measures of center and spread, such as mean and
06. Interpret the relationship between two variables using multiple graphical
E. Evaluate the validity of claims and predictions that are based on data by
04. Describe and compare various types of studies (survey, observation,
F. Construct convincing arguments based on analysis of data and interpretation

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

of graphs. (08-10)
09. Construct convincing arguments based on analysis of data and interpretation of graphs. (08)

OGT Lesson 31 - Permutations and Combinations

Math 10 - OGT Lesson 31 - Permutations and Combinations

Standard Benchmark and Indicator
S05. Data Analysis and Probability
E. Evaluate the validity of claims and predictions that are based on data by examining the appropriateness of the data collection and analysis. (08-10)
04. Describe and compare various types of studies (survey, observation, experiment), and identify possible misuses of statistical data. (09)
H. Use counting techniques, such as permutations and combinations, to determine the total number of options and possible outcomes. (08-10)
07. Use counting techniques and the Fundamental Counting principle to determine the total number of possible outcomes for mathematical situations. (09)

OGT Lesson 32 - Probabilities of Different Events

Math 10 - OGT Lesson 32 - Probabilities of Different Events

Standard Benchmark and Indicator

probability). (10)
09. Identify situations involving independent and dependent events, and explain differences between, and common misconceptions about probabilities associated with those events. (09)
11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities. (08)
K. Make predictions based on theoretical probabilities and experimental results. (08-10)
08. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other. (10)
10. Use theoretical and experimental probability, including simulations or random numbers, to estimate probabilities and to solve problems dealing with uncertainty; e.g., compound events, independent events, simple dependent events. (09)

OGT Lesson 33 - Review of Lessons #28 through #32

Math 10 - OGT Lesson 33 - Review of Lessons #28 through #32

Standard Benchmark and Indicator

determine the total number of options and possible outcomes. (08-10)
10. Calculate the number of possible outcomes for a situation, recognizing and accounting for when items may occur more than once or when order is important.
I. Design an experiment to test a theoretical probability, and record and explain results. (08-10)
08. Describe, create and analyze a sample space and use it to calculate probability. (09)

Virtual Learning Academy
Jefferson County Educational Service Center
Academic Content Standards
OGT Math Preparation

08. Describe, create and analyze a sample space and use it to calculate probability. (09)
J. Compute probabilities of compound events, independent events, and simple dependent events. (08-10)
07. Model problems dealing with uncertainty with area models (geometric probability). (10)
09. Identify situations involving independent and dependent events, and explain differences between, and common misconceptions about probabilities associated with those events. (09)
11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities. (08)
K. Make predictions based on theoretical probabilities and experimental results. (08-10)
08. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other. (10)
10. Use theoretical and experimental probability, including simulations or random numbers, to estimate probabilities and to solve problems dealing with uncertainty; e.g., compound events, independent events, simple dependent events. (09)

OGT Lesson 34 - OGT Mathematics Practice Test – Part 1

OGT Lesson 35 - OGT Mathematics Practice Test – Part 2

OGT Lesson 36 - Final Test

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