ALEKS®
Mathematics - LV 6

Correlation of the ALEKS course Mathematics LV 6 to the Tennessee Grade Six Mathematics Standards (2009)

Standard 2: Number & Operations

Grade Level Expectations:

GLE 0606.2.1: Understand and explain the procedures for multiplication and division of fractions, mixed numbers, and decimals.
Product of a unit fraction and a whole number
Product of a fraction and a whole number
Fraction multiplication
Fraction division
Mixed number multiplication: Problem type 1
Mixed number multiplication: Problem type 2
Mixed number division
Multiplication of a decimal by a power of ten
Multiplication of a decimal by a whole number
Decimal multiplication: Problem type 1
Division of a decimal by a power of ten
Division of a decimal by a whole number
Decimal division

GLE 0606.2.2: Solve multi-step mathematical, contextual and verbal problems using fractions, mixed numbers, and decimals.
Fractional part of a circle
Word problem with fractions
Word problem with powers of ten
Word problem with multiple decimal operations: Problem type 1
Word problem with multiple decimal operations: Problem type 2
Finding if a question can be answered by the data

GLE 0606.2.3: Understand and use ratios, rates and percents.
Interpreting circle graphs or pie charts
Introduction to ratios
Basic word problem on rates
Introduction to percent
Percentage of a whole number
Writing a ratio as a percentage
Word problem on percentage: Problem type 1
Word problem on percentage: Problem type 3
Simple interest
Computing a percentage from a table of values

GLE 0606.2.4: Understand and convert between fraction, decimal, and percent forms of rational numbers.
Introduction to writing a decimal as a fraction
Converting a decimal to a fraction
Introduction to converting a fraction to a decimal
Converting a fraction to a terminating decimal

Converting a fraction to a repeating decimal
Introduction to writing a decimal as a mixed number
Converting a mixed number to a decimal
Converting between percentages and decimals
Converting a percentage to a fraction
Converting a fraction to a percentage
Writing a ratio as a percentage

GLE 0606.2.5: Develop meaning for integers; represent and compare quantities with integers.
Plotting integers on a number line
Integers and rational numbers

Checks for Understanding (Formative/Summative Assessment):

0606.2.1: Efficiently compare and order fractions, decimals and percents; determine their approximate locations on a number line.
Ordering fractions with same denominator
Ordering fractions with same numerator
Ordering fractions
Fractional position on a number line
Plotting fractions on a number line
Ordering decimals
Ordering fractions and decimals
Interpreting circle graphs or pie charts

0606.2.2: Use area models to represent multiplication of fractions.
N/A

0606.2.3: Create and solve contextual problems that lead naturally to division of fractions.
N/A

0606.2.4: Understand ratio as a fraction used to compare two quantities by division.
Basic word problem on rates

0606.2.5: Recognize a:b, a/b, and "a to b" as notations for ratios.
Introduction to ratios

0606.2.6: Recognize common percentages as ratios based on fractions whose denominators are 2, 3, 4, 5, or 10.
Converting a percentage to a fraction

0606.2.7: Connect ratio and rate to multiplication and division.
Basic word problem on rates

0606.2.8: Recognize that a terminating decimal equals a fraction with a denominator that is a power of ten.
Introduction to writing a decimal as a fraction
Converting a decimal to a fraction

0606.2.9: Recognize that the decimal form of a rational number either terminates or repeats.
Converting a fraction to a terminating decimal
Converting a fraction to a repeating decimal

0606.2.10: Explore contexts that can be described with negative numbers (such as money, elevation, and temperature).
Reading the temperature from a thermometer

State Performance Indicators:

SPI 0606.2.1: Solve problems involving the multiplication and division of fractions.
  Product of a unit fraction and a whole number
  Product of a fraction and a whole number
  Fraction multiplication
  Word problem with fractions
  Fraction division
  Finding if a question can be answered by the data

SPI 0606.2.2: Solve problems involving the addition, subtraction, multiplication, and division of mixed numbers.
  Addition or subtraction of mixed numbers with same denominator
  Addition of mixed numbers with same denominator and carry
  Subtraction of mixed numbers with same denominator and borrowing
  Addition or subtraction of mixed numbers with different denominators
  Mixed number multiplication: Problem type 1
  Mixed number multiplication: Problem type 2
  Mixed number division

SPI 0606.2.3: Solve problems involving the addition, subtraction, multiplication, and division of decimals.
  Addition of aligned decimals
  Addition with money
  Subtraction of aligned decimals
  Subtraction with money
  Word problem with one decimal operation: Problem type 1
  Word problem with one decimal operation: Problem type 2
  Multiplication of a decimal by a power of ten
  Multiplication of a decimal by a whole number
  Decimal multiplication: Problem type 1
  Word problem with powers of ten
  Word problem with multiple decimal operations: Problem type 1
  Division of a decimal by a power of ten
  Division of a decimal by a whole number
  Decimal division
  Word problem with multiple decimal operations: Problem type 2

SPI 0606.2.4: Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals.
  Fractional part of a circle
  Word problem with fractions
  Word problem with powers of ten
  Word problem with multiple decimal operations: Problem type 1
  Word problem with multiple decimal operations: Problem type 2

SPI 0606.2.5: Transform numbers from one form to another (fractions, decimals, percents, and mixed numbers).
  Writing a mixed number as an improper fraction
  Introduction to writing a decimal as a fraction
  Converting a decimal to a fraction
  Introduction to converting a fraction to a decimal
  Converting a fraction to a terminating decimal
  Converting a fraction to a repeating decimal
  Introduction to writing a decimal as a mixed number
  Converting a mixed number to a decimal
  Converting between percentages and decimals
  Converting a percentage to a fraction
  Converting a fraction to a percentage

SPI 0606.2.6: Solve problems involving ratios, rates and percents.
  Interpreting circle graphs or pie charts

Introduction to ratios
Basic word problem on rates
Introduction to percent
Percentage of a whole number
Writing a ratio as a percentage
Word problem on percentage: Problem type 1
Word problem on percentage: Problem type 3
Simple interest
Computing a percentage from a table of values
Angle measures in circle graphs

SPI 0606.2.7: Locate positive rational numbers on the number line.
Fractional position on a number line
Plotting fractions on a number line

SPI 0606.2.8: Locate integers on the number line.
Plotting integers on a number line

Standard 3: Algebra

Grade Level Expectations:

GLE 0606.3.1: Write and solve two-step equations and inequalities.
Using two steps to solve an equation

GLE 0606.3.2: Interpret and represent algebraic relationships with variables in expressions, simple equations and inequalities.
Writing a mathematical expression
Writing an inequality
Graphing a linear inequality on the number line
Translating sentences into equations

GLE 0606.3.3: Extend order of operations to include grouping symbols and exponents.
Introduction to parentheses
Order of operations: Problem type 2

GLE 0606.3.4: Use expressions, equations and formulas to solve problems.
Area of a triangle
Finding the side length of a rectangle given its perimeter or area
Area of a parallelogram
Area of a trapezoid
Finding the radius or the diameter of a circle given its circumference
Volume of a cube or a rectangular prism
Simple word problem on proportions
Word problem on proportions: Problem type 1
Multiplicative property of equality with fractions
Function tables with two-step rules

GLE 0606.3.5: Use multiple representations including symbolic algebra to model and/or solve contextual problems that involve linear relationships.
Basic word problem on rates
Simple word problem on proportions
Word problem on proportions: Problem type 1
Writing a mathematical expression
Multiplicative property of equality with fractions

Translating sentences into equations

GLE 0606.3.6: Understand and use the Cartesian coordinate system.
  Reading a point in the coordinate plane
  Plotting a point in the coordinate plane

Checks for Understanding (Formative/Summative Assessment):

0606.3.1: Write and solve two-step linear equations corresponding to given situations (non-negative numbers only).
  N/A

0606.3.2: Write and solve one-step inequalities corresponding to given situations (non-negative numbers only).
  Solving a linear inequality: Problem type 1

0606.3.3: Recognize the use of juxtaposition (such as 3x, ab) to stand for multiplication, and the convention in these cases of writing numbers before letters.
  Evaluating a simple algebraic expression: Problem type 3
  Multiplicative property of equality: Problem type 1

0606.3.4: Generate data and graph relationships concerning measurement of length, area, volume, weight, time, temperature, money, and information.
  Histograms for numerical data
  Bar graphs for non-numerical data
  Line plots

0606.3.5: Use the commutative, associative and distributive properties to show that two expressions are equivalent.
  Introduction to properties of addition
  Introduction to properties of multiplication
  Introduction to the distributive property
  Distributive property: Basic

0606.3.6: Use equations to describe simple relationships shown in a table or graph.
  Function tables with two-step rules

0606.3.7: Move fluently between different representations (such as verbal, tabular, numerical, algebraic, and graphical) of equations and expressions.
  Writing a mathematical expression
  Writing an inequality
  Graphing a linear inequality on the number line
  Translating sentences into equations
  Function tables with one-step rules
  Function tables with two-step rules
  Finding a function rule: Problem type 1
  Graphing a line in quadrant 1
  Graphing a line given its equation in slope-intercept form
  Graphing a vertical or horizontal line

0606.3.8: Represent patterns using words, graphs, and simple symbolic notation.
  Finding a function rule: Problem type 1

0606.3.9: Write a contextual story modeled by a given graph.
  N/A

0606.3.10: Understand that in an ordered pair (x, y), the x represents horizontal location and y represents vertical location.
  Reading a point in the coordinate plane
  Plotting a point in the coordinate plane

0606.3.11: Identify the quadrant of the coordinate system in which a point lies.
  N/A

State Performance Indicators:

SPI 0606.3.1: Represent on a number line the solution of a linear inequality.
  Graphing a linear inequality on the number line

SPI 0606.3.2: Use order of operations and parentheses to simplify expressions and solve problems.
  Introduction to parentheses
  Introduction to order of operations
  Order of operations: Problem type 1
  Order of operations: Problem type 2

SPI 0606.3.3: Write equations that correspond to given situations or represent a given mathematical relationship.
  Writing a mathematical expression
  Translating sentences into equations

SPI 0606.3.4: Rewrite expressions to represent quantities in different ways.
  Expanded form
  Expanded form with zeros
  Understanding multiplication of a one-digit number with a larger number
  Introduction to parentheses
  Order of operations: Problem type 1
  Order of operations: Problem type 2
  Prime number factorization
  Introduction to the distributive property
  Fact families for addition and subtraction
  Fact families for multiplication and division
  Distributive property: Basic

SPI 0606.3.5: Translate between verbal expressions/sentences and algebraic expressions/equations.
  Writing a mathematical expression
  Translating sentences into equations
  Function tables with two-step rules

SPI 0606.3.6: Solve two-step linear equations using number sense, properties, and inverse operations.
  Using two steps to solve an equation
  Function tables with two-step rules

SPI 0606.3.7: Use algebraic expressions and properties to analyze numeric and geometric patterns.
  Function tables with two-step rules
  Finding a function rule: Problem type 1

SPI 0606.3.8: Select the qualitative graph that models a contextual situation (e.g., water filling then draining from a bathtub).
  N/A

SPI 0606.3.9: Graph ordered pairs of integers in all four quadrants of the Cartesian coordinate system.
  Plotting a point in the coordinate plane

Standard 4: Geometry & Measurement

Grade Level Expectations:

GLE 0606.4.1: Understand and use basic properties of triangles, quadrilaterals, and other polygons.
  Acute, obtuse, and right triangles
  Scalene, isosceles, and equilateral triangles
  Sum of the angle measures of a triangle
  Solving a triangle: Problem type 1
  Classifying quadrilaterals
  Classifying parallelograms
  Finding the missing length in a figure

GLE 0606.4.2: Use the concepts of translation, rotation, reflection, and symmetry to understand congruence in the plane.
  Introduction to congruence

GLE 0606.4.3: Develop and use formulas to determine the circumference and area of circles, and the area of trapezoids, and develop strategies to find the area of composite shapes.
  Area of a piecewise rectangular figure
  Area of a trapezoid
  Area involving rectangles and triangles
  Circumference of a circle
  Circumference and area of a circle
  Area between two concentric circles
  Area involving rectangles and circles
  Area involving inscribed figures

GLE 0606.4.4: Develop and use formulas for surface area and volume of 3-dimensional figures.
  Volume of a cube or a rectangular prism
  Volume of a solid made of unit cubes
  Volume of a triangular prism
  Volume of a cylinder
  Surface area of a cube or a rectangular prism
  Surface area of a solid made of unit cubes
  Surface area of a triangular prism
  Surface area of a cylinder

Checks for Understanding (Formative/Summative Assessment):

0606.4.1: Investigate the sum of the angles in a triangle and a quadrilateral using various methods.
  Sum of the angle measures of a triangle

0606.4.2: Relate the sum of the angles in a triangle to the sum of the angles in polygons.
  N/A

0606.4.3: Verify the basic properties of triangles and quadrilaterals using a protractor and ruler.
  N/A

0606.4.4: Classify triangles by side lengths (scalene, isosceles, and equilateral) and angle measure (acute, right, obtuse, isosceles and equiangular).
  Acute, obtuse, and right triangles
  Scalene, isosceles, and equilateral triangles

0606.4.5: Model and use the Triangle Inequality Theorem.
  N/A

0606.4.6: Use the properties of interior and exterior angles of polygons to solve problems.
  Solving a triangle: Problem type 1

0606.4.7: Work with transformations in a plane and explore their meanings through drawings and manipulatives.

Introduction to translations
Translation of a polygon
Introduction to reflections
Reflection of a polygon over a vertical or horizontal line
Rotation of a figure about the origin
Identifying transformations

0606.4.8: Understand scaling, dilation and their relation to similarity.
Introduction to similarity

0606.4.9: Analyze the differences between congruence and similarity.
Introduction to similarity

0606.4.10: Describe the effect of a transformation on a 2-dimensional figure and the resulting symmetry.
N/A

0606.4.11: Relate the circumference of a circle with the perimeter of a polygonal figure.
N/A

0606.4.12: Derive the meaning of Pi using concrete models and/or appropriate technology.
N/A

0606.4.13: Understand the relationships among the radius, diameter, circumference and area of a circle, and that the ratio of the circumference to the diameter is the same as the ratio of the area to the square of the radius, and that this ratio is called Pi.
Finding the radius or the diameter of a circle given its circumference
Circumference and area of a circle

0606.4.14: Relate the area of a trapezoid to the area of a parallelogram.
Area of a parallelogram
Area of a trapezoid

0606.4.15: Find lengths given areas or volumes, and vice versa.
Area of a triangle
Sides of polygons having the same perimeter
Area of a square or a rectangle
Distinguishing between area and perimeter
Areas of rectangles with the same perimeter
Finding the side length of a rectangle given its perimeter or area
Area of a piecewise rectangular figure
Area of a parallelogram
Area of a trapezoid
Area involving rectangles and triangles
Finding the radius or the diameter of a circle given its circumference
Circumference and area of a circle
Area involving rectangles and circles
Area involving inscribed figures
Volume of a cube or a rectangular prism
Volume of a triangular prism
Volume of a cylinder
Surface area of a cube or a rectangular prism
Surface area of a triangular prism
Surface area of a cylinder

0606.4.16: Solve contextual problems involving area and circumference of circles, surface areas and volumes of prisms, pyramids, cones, and cylinders.
Sides of polygons having the same perimeter

Distinguishing between area and perimeter
Areas of rectangles with the same perimeter
Area between two concentric circles
Volume of a cylinder

0606.4.17: Use manipulatives to discover the volume of a pyramid is one-third the volume of the related prism (the heights and base areas are equal).
N/A

0606.4.18: Use manipulatives to discover the volume of a cone is one-third the volume of the related cylinder (the heights and base areas are equal).
N/A

State Performance Indicators:

SPI 0606.4.1: Identify, define or describe geometric shapes given a visual representation or a written description of its properties.
Acute, obtuse, and right angles
Acute, obtuse, and right triangles
Scalene, isosceles, and equilateral triangles
Classifying quadrilaterals
Nets of solids
Vertices, edges, and faces of a solid
Side views of a solid made of cubes

SPI 0606.4.2: Find a missing angle measure in problems involving interior/exterior angles and/or their sums.
Sum of the angle measures of a triangle
Solving a triangle: Problem type 1

SPI 0606.4.3: Solve problems using the Triangle Inequality Theorem.
N/A

SPI 0606.4.4: Calculate with circumferences and areas of circles.
Circumference of a circle
Circumference and area of a circle

SPI 0606.4.5: Determine the surface area and volume of prisms, pyramids and cylinders.
Volume of a cube or a rectangular prism
Volume of a solid made of unit cubes
Volume of a triangular prism
Volume of a cylinder
Surface area of a cube or a rectangular prism
Surface area of a solid made of unit cubes
Surface area of a triangular prism
Surface area of a cylinder

SPI 0606.4.6: Given the volume of a cone/pyramid, find the volume of the related cylinder/prism or vice versa.
N/A

Standard 5: Data Analysis, Statistics, & Probability

Grade Level Expectations:

GLE 0606.5.1: Understand the meaning of probability and how it is expressed.
Outcomes and event probability
Understanding likelihood

Introduction to probability of an event
Probability of an event

GLE 0606.5.2: Interpret representations of data from surveys and polls, and describe sample bias and how data representations can be misleading.
  Interpreting bar graphs
  Double bar graphs
  Interpreting line graphs

Checks for Understanding (Formative/Summative Assessment):

0606.5.1: Understand that the probability of an event is a number between zero and one that expresses the likelihood of its occurrence.
  Outcomes and event probability
  Understanding likelihood
  Introduction to probability of an event
  Probability of an event

0606.5.2: Identify the probability of an event as the ratio of the number of its actual occurrences to the total number of its possible occurrences.
  Outcomes and event probability
  Introduction to probability of an event
  Probability of an event

0606.5.3: Express probabilities in different ways.
  Outcomes and event probability
  Understanding likelihood
  Introduction to probability of an event
  Probability of an event

0606.5.4: Understand the difference between probability and odds.
  N/A

0606.5.5: Analyze a situation that involves probability of an independent event.
  Probability of independent events

0606.5.6: Estimate the probability of simple and compound events through experimentation or simulation.
  Experimental and theoretical probability

0606.5.7: Apply procedures to calculate the probability of complimentary events.
  N/A

0606.5.8: Connect data sets and their graphical representations (such as bar graphs, circle, graphs, and stem-and-leaf plots).
  Histograms for numerical data
  Bar graphs for non-numerical data
  Line plots
  Interpreting bar graphs
  Double bar graphs
  Interpreting line graphs
  Interpreting a stem-and-leaf plot
  Using back-to-back stem-and-leaf plots to compare data sets
  Box-and-whisker plots
  Venn diagrams with two sets
  Venn diagrams with three sets
  Interpreting the graphs of two functions

0606.5.9: Determine the sample space for a given situation.
  Tree diagrams

0606.5.10: Distinguish between a random and nonrandom sample.
  N/A

0606.5.11: Select the appropriate measure of center to describe a data set.
  Choosing the best measure to describe data

0606.5.12: Predict the characteristics of a population based on the analysis of sample data.
  Introduction to expectation

State Performance Indicators:

SPI 0606.5.1: Determine the theoretical probability of simple and compound events in familiar contexts.
  Outcomes and event probability
  Introduction to probability of an event
  Probability of an event
  Probability of independent events
  Probability of dependent events

SPI 0606.5.2: Identify features of graphs that may be misleading.
  N/A

SPI 0606.5.3: Determine whether or not a sample is biased.
  N/A