

Math, Grade 6 (IMRA)

Subject: Mathematics

Grade: 06

Expectations: 59

Breakouts: 211

(a) Introduction.

1. The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while grade level and course.

When possible, students will apply mathematics to problems arising in everyday life, society, and the workplace. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will select appropriate tools such as real objects, manipulatives, algorithms, paper and pencil, and technology and techniques such as mental math, estimation, number sense, and generalization and abstraction to solve problems. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, computer programs, and language. Students will use mathematical relationships to generate solutions and make connections and predictions. Students will analyze mathematical relationships to connect and communicate mathematical ideas. Students will display, explain, or justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

representations of relationships, including equations and inequalities. Students will use algebraic thinking, as well as spatial reasoning, to model and analyze situations and solve problems. Students will use geometric figures or situations by quantifying attributes, generalize procedures, and apply the procedures to solve problems. Students use appropriate statistics, represent data, draw conclusions, evaluate arguments, and make recommendations. While the u

- (xiii) communicate [mathematical reasoning's] implications using multiple representations, including symbols as appropriate
 - (xiv) communicate [mathematical reasoning's] implications using multiple representations, including diagrams as appropriate
 - (xv) communicate [mathematical reasoning's] implications using multiple representations, including graphs as appropriate
 - (xvi) communicate [mathematical reasoning's] implications using multiple representations, including language as appropriate
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (i) create representations to organize mathematical ideas
 - (ii) use representations to organize mathematical ideas
 - (iii) create representations to record mathematical ideas
 - (iv) use representations to record mathematical ideas
 - (v) create representations to communicate mathematical ideas
 - (vi) use representations to communicate mathematical ideas
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (i) analyze mathematical relationships to connect mathematical ideas
 - (ii) analyze mathematical relationships to communicate mathematical ideas
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- (i) display mathematical ideas using precise mathematical language in written or oral communication
 - (ii)

(C)

- (i) represent benchmark fractions using 10 by 10 grids
- (ii) represent benchmark fractions using strip diagrams
- (iii) represent benchmark fractions using number lines
- (iv) represent benchmark fractions using numbers
- (v) represent percents using 10 by 10 grids
- (vi) represent percents strip diagrams
- (vii) represent percents using number lines
- (viii) represent percents using numbers

(G) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money; and

- (i) generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money

(H) convert units within a measurement system, including the use of proportions and unit rates.

- (i) convert units within a measurement system, including the use of proportions
- (ii) convert units within a measurement system, including the use of unit rates

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- (xvi) represent real-world problems involving rates using proportions
- (B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models; and
 - (i) solve real-world problems to find the whole given a part and the percent, including the use of concrete models
 - (ii) solve real-world problems to find the whole given a part and the percent, including the use of pictorial models
 - (iii) solve real-world problems to find the part given the whole and the percent, including the use of concrete models
 - (iv) solve real-world problems to find the part given the whole and the percent, including the use of pictorial models
 - (v) solve real-world problems to find the percent given the part and the whole, including the use of concrete models
 - (vi) solve real-world problems to find the percent given the part and the whole, including the use of pictorial models
- (C) use equivalent fractions, decimals, and percents to show equal parts of the same whole.
 - (i) use equivalent fractions, decimals, and percents to show equal parts of the same whole
- (6) Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:
 - (A) identify independent and dependent quantities from tables and graphs;
 - (i) identify independent quantities from tables
 - (ii) identify independent quantities from graphs
 - (iii) identify dependent quantities from tables
 - (iv) identify dependent quantities from graphs
 - (B) write an equation that represents the relationship between independent and dependent quantities from a table; and
 - (i) write an equation that represents the relationship between independent and dependent quantities from a table
 - (C)

- (i) generate equivalent numerical expressions using order of operations, including whole number exponents
 - (ii) generate equivalent numerical expressions using prime factorization
- (B) distinguish between expressions and equations verbally, numerically, and algebraically;
- (i) distinguish between expressions and equations verbally
 - (ii) distinguish between expressions and equations numerically
 - (iii) distinguish between expressions and equations algebraically
- (C) determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and
- (i) determine if two expressions are equivalent using concrete models
 - (ii) determine if two expressions are equivalent using pictorial models
 - (iii) determine if two expressions are equivalent using algebraic representations
- (D) generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties.
- (i) generate equivalent expressions using the properties of operations: inverse properties
 - (ii) generate equivalent expressions using the properties of operations: identity properties
 - (iii) generate equivalent expressions using the properties of operations: commutative properties
 - (iv) generate equivalent expressions using the properties of operations: associative properties
 - (v) generate equivalent expressions using the properties of operations: distributive properties
- (8) Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:
- (A) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle;
- (i) extend previous knowledge of triangles and their properties to include the sum of angles of a triangle
 - (ii) extend previous knowledge of triangles and their properties to include the relationship between the lengths of sides and measures of angles in a triangle
 - (iii) extend previous knowledge of triangles and their properties to include determining when three lengths form a triangle
- (B) model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes;
- (i) model area formulas for parallelograms by decomposing and rearranging parts of these shapes
 - (ii) model area formulas for trapezoids

(B) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

(i) determine if the given value(s) make(s) one-variable, one-step equations or inequalities true

(11) Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to graph points in all four quadrants using ordered pairs of rational numbers.

(A) graph points in all four quadrants using ordered pairs of rational numbers

(i) graph points in all four quadrants using ordered pairs of rational numbers

(12) Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to analyze problems. The student is expected to:

(A) represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots;

(i) represent numeric data graphically, including dot plots

(ii) represent numeric data graphically, including stem-and-leaf plots

(iii) represent numeric data graphically, including histograms

(iv) represent numeric data graphically, including box plots

(B) use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution;

(i) use the graphical representation of numeric data to describe the center of the data distribution

(ii) use the graphical representation of numeric data to describe the spread of the data distribution

(iii) use the graphical representation of numeric data to describe the shape of the data distribution

(C) summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution; and

(i) summarize numeric data with numerical summaries, including the mean and median (measures of center)

(ii) summarize numeric data with numerical summaries, including the range and the interquartile range (IQR)(measures of spread)

(iii) use these summaries to describe the center of the data dis

- (A) interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots; and
 - (i) interpret numeric data summarized in dot plots
 - (ii) interpret numeric data summarized in stem-and-leaf plots
 - (iii) interpret numeric data summarized in histograms
 - (iv) interpret numeric data summarized in box plots
 - (B) distinguish between situations that yield data with and without variability.
 - (i) distinguish between situations that yield data with and without variability
- (14) Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to:
- (A) compare the features and costs of a checking account and a debit card offered by different local financial institutions;
 - (i) compare the features of a checking account offered by different local financial institutions
 - (ii) compare the costs of a checking account offered by different local financial institutions
 - (iii) compare the features of a debit card offered by different local financial institutions
 - (iv) compare the costs of a debit card offered by different local financial institutions
 - (B) distinguish between debit cards and credit cards;
 - (i) distinguish between debit cards and credit cards
 - (C) balance a check register that includes deposits, withdrawals, and transfers;
 - (i) balance a check register that includes deposits
 - (ii) balance a check register that includes withdrawals
 - (iii) balance a check register that includes transfers
 - (D) explain why it is important to establish a positive credit history;
 - (i) explain why it is important to establish a positive credit history
 - (E) describe the information in a credit report and how long it is retained;
 - (i) describe the information in a credit report
 - (ii) describe how long it is retained
 - (F) describe the value of credit reports to borrowers and to lenders;
 - (i) describe the value of credit reports to borrowers
 - (ii) describe the value of credit reports to lenders
 - (G) explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study; and
 - (i) explain various methods to pay for college, including through savings
 - (ii) explain various methods to pay for college, including through grants
 - (iii) explain various methods to pay for college, including through scholarships

