

8th Grade Math

1st Nine Weeks

Number and Operations

- Order a set of real numbers
- Calculate and compare simple and compound interest.
- Describe relationship between sets of real numbers
- Convert between standard and scientific notation
- Approximate the value of an irrational number and locate on number line
- Solve interest rate and loan length problems
- Explain investments and how they grow over time

Solving Algebraic Equations

- Model equations with algebra tiles.
- Solve equations and inequalities with variables on both sides
- Write one-variable equations or inequalities with variables on both sides
- Write a corresponding real-world problem when given an equation or inequality

Proportional relationships and slope

- Represent linear proportional situations with tables, graphs and equations
- Solve problems involving direct variation
- Use similar right triangles to develop an understanding of slope
- Slope formula
- Use data from a table or graph to determine slope/rate of change
- Graph proportional relationships using unit rate as slope

2nd Nine Weeks

Non-Proportional relationships

- Identify functions using ordered pairs, tables, mappings and graphs
- Write an equation to model a linear relationship using verbal description, table and graph
- Use data from a table or graph to determine slope/rate of change and y intercept
- Distinguish between proportional and non-proportional situations
- Represent linear non-proportional situations with tables, graphs and equations.
- Identify and verify solutions to systems of equations graphically.

Pythagorean Theorem and Angle Relationships

- Use the Pythagorean theorem to solve problems
- Determine distance on coordinate plane
- Angles created when 2 parallel lines are cut by transversal
- Ratio of corresponding sides of similar shapes are proportional
- Model the effect on linear and area measurements

3rd Nine Weeks

Similarity and Transformations

- Scale factors applied to figures, use an algebraic expression
- Translations, reflections and rotations
- Attributes of a shape and its dilation
- Properties of orientation and congruence of rotation, reflection, translation and dilation
- Differentiate between which transformations preserve congruence and which do not.

Measurement

- Volume of cylinder
- Volume of prism
- Volume of cone
- Volume of sphere
- Surface Area of prisms and cylinders

Data Analysis

- Compare data that do form a linear relationship with those that do not
- Construct a scatterplot and classify data as linear, non-linear and no association
- Determine mean absolute deviation
- Use a trend line to approximate relationship in a scatterplot
- Estimate the cost of a two year and four year college education

4th Nine Weeks

STAAR Review

- Review targeted TEKS from assessed curriculum.
- Utilize data from benchmark to identify weaknesses
- Close gaps

STAAR EXAM is April 7

Bridge to Algebra 1

- Targeted teaching to prepare students for Algebra 1
- Review Solving Equations and Inequalities by hand with variables on both sides
- Continue practicing distributive property when solving equations
- Review graphing lines by hand from form $y=mx$ and $y=mx+b$
- Graph inequalities by hand from form $y>mx$ and $y>mx+b$

Algebra PAP, 8th Grade

1st Nine Weeks

Write and Solve Equations and Inequalities

- Solve linear equations with variables on both sides and distributive property
- Solve linear inequalities with variables on both sides and distributive property

Relations to functions

- Determine domain and range for linear functions
- Determine whether a function is continuous or discrete
- Solve literal equations
- Decide whether relations represent a function verbally, tabularly, graphically and symbolically

Graphing Linear functions

- Calculate the rate of change
- Graph linear functions on a coordinate plane and identify key features: x intercept, y intercept, zeros and slope
- Graph solution set of linear inequalities
- Determine slope using a table, graph, two points, and an equation
- Determine the effects on the graph of the linear parent function

2nd Nine Weeks

Write Linear Functions

- Write linear equations in two variables given table, graph or verbal description
- Write equations in various forms including slope-intercept, standard form, and point-slope form.
- Write linear inequalities in two variables given table, graph or verbal description
- Write and solve equations involving direct variation
- Write an equation of a line with a slope of zero and undefined
- Write the equation of a line that contains a given point and is parallel or perpendicular to a given line

Graphing Systems

- Graph systems of two linear equations on a coordinate plane and determine solution.
- Estimate graphically the solutions of systems.
- Graph systems of two linear inequalities on a coordinate plane and determine solution set.
- Write systems of two equations given a table, graph and/or verbal description

Properties of exponents and polynomials

- Add, subtract, multiply and divide polynomials
- Simplify numeric and algebraic expressions using laws of exponents
- Use distributive property to rewrite polynomial expressions

3rd Nine Weeks

Exponentials

- Simplify numerical radical expressions involving square roots
- Determine domain and range of exponential graphs
- Perform exponential regression using technology
- Graph exponential functions that model growth and decay
- Write exponential functions and interpret the meaning of the values a and b in an exponential situation
- Identify terms of geometric sequences
- Write a formula for the nth term in a geometric sequence

Factoring and solving quadratics

- Decide if a binomial can be written as difference of two squares
- Factor trinomials
- Describe the relationship between linear factors of quadratic expressions and their zeros
- Solve quadratic equations by factoring, taking square roots, completing the square and applying the quadratic formula

Graphing and writing quadratics

- Determine domain and range of quadratic functions
- Graph quadratics on coordinate plane and identify key attributes: x & y-intercepts, zeros, maximum value.

4th Nine Weeks

Graphing and Writing quadratics continued

- Determine the effects of transformations on the parent graph of the quadratic function
- Write equations of quadratic functions given the vertex and another point and write equation in vertex form
- Convert vertex form to standard form
- Write quadratic functions given real solutions and graphs of their related equations
- Perform quadratic regression using technology

Scatterplots and regression

- Calculate the correlation coefficient
- Compare and contrast causation and association
- Write linear functions to fit data with and without technology.
- Identify terms of arithmetic sequences

Sequences and simplifying radicals

- Write a formula for the nth term of an arithmetic sequence
- Simplify numerical radical expressions involving square roots
- Identify terms of arithmetic and geometric sequences when the sequences are given in function form

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STAAR EXAM is May 5