STAAR EOC Tutorials for Texas are designed specifically for the Texas Essential Knowledge and Skills (TEKS) to prepare students for the State of Texas Assessment of Academic Readiness (STAAR)® end-of-course assessments. EOC Categories are at the heart of STAAR EOC Tutorial structure – bringing category-based learning to the student experience, and category-based performance and progress tracking to the teacher experience.

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Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Test-Taking Strategies for EOC Tutorials allow students to practice and apply learning approaches that will hone their test-taking skills and focus them for success on the day of their EOC test.

Unit 1: Systems of Linear Equations and Inequalities

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: MATRICES**
  - 3.2A.3.B: solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution;
- **SOLVING SYSTEMS OF LINEAR INEQUALITIES**
  - 3.2A.3.E: formulate systems of at least two linear inequalities in two variables;
  - 3.2A.3.F: solve systems of two or more linear inequalities in two variables; and

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- 3.2A.3.G: determine possible solutions in the solution set of systems of two or more linear inequalities in two variables.

- **SOLVING THREE-VARIABLE SYSTEMS OF LINEAR EQUATIONS**
  - 3.2A.3.A: formulate systems of equations, including systems consisting of three linear equations in three variables and systems consisting of two equations, the first linear and the second quadratic;
  - 3.2A.3.B: solve systems of three linear equations in three variables by using Gaussian elimination, technology with matrices, and substitution;

Unit 2: Functions

- **DOMAIN AND RANGE**
  - 1.2A.7.I: write the domain and range of a function in interval notation, inequalities, and set notation.

Unit 3: Absolute Value Functions

- **ABSOLUTE VALUE FUNCTIONS**
  - 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;

Unit 4: Operations with Polynomials

- **ADDITION AND SUBTRACTION OF POLYNOMIALS**
  - 1.2A.7.B: add, subtract, and multiply polynomials;
- **MULTIPLICATION OF POLYNOMIALS**
  - 1.2A.7.B: add, subtract, and multiply polynomials;
- **DIVISION OF POLYNOMIALS**
  - 1.2A.7.C: determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two;

Unit 5: Quadratic Functions

- **REPRESENTATIONS OF QUADRATIC FUNCTIONS**
  - 4.2A.4.D: transform a quadratic function f(x) = ax + bx + c to the form f(x) = a(x - h) + k to identify the different attributes of f(x);
  - 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;
- **ANALYZING GRAPHS OF QUADRATIC FUNCTIONS**
  - 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;
- **PARABOLAS**

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- 4.2A.4.D: transform a quadratic function f(x) = ax + bx + c to the form f(x) = a(x - h) + k to identify the different attributes of f(x);
- 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;
- 4.2A.4.D: transform a quadratic function f(x) = ax + bx + c to the form f(x) = a(x - h) + k to identify the different attributes of f(x);

Unit 6: Solving Quadratic Equations and Inequalities

- **SOLVING QUADRATIC EQUATIONS BY FACTORING**
  - 4.2A.4.F: solve quadratic and square root equations;
  - 4.2A.4.A: write the quadratic function given three specified points in the plane;
- **COMPLETING THE SQUARE**
  - 4.2A.4.F: solve quadratic and square root equations;
  - 4.2A.4.D: transform a quadratic function f(x) = ax + bx + c to the form f(x) = a(x - h) + k to identify the different attributes of f(x);
  - 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;
- **QUADRATIC FORMULA**
  - 4.2A.4.F: solve quadratic and square root equations;
  - 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;
- **SOLVING QUADRATIC INEQUALITIES**
  - 4.2A.4.H: solve quadratic inequalities.

Unit 7: Complex Numbers

- **COMPLEX NUMBERS AND QUADRATIC FUNCTIONS**
  - 4.2A.4.F: solve quadratic and square root equations;
  - 1.2A.7.A: add, subtract, and multiply complex numbers;
  - 4.2A.4.B: write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening;

Unit 8: Factoring Polynomials

- **FACTORING CUBIC POLYNOMIALS**
  - 1.2A.7.E: determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping;
- **FACTORING HIGHER-ORDER POLYNOMIALS**

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- 1.2A.7.E: determine linear and quadratic factors of a polynomial expression of degree three and of degree four, including factoring the sum and difference of two cubes and factoring by grouping;

Unit 9: Solving Higher-Order Polynomial Equations

- **FACTOR THEOREM AND REMAINDER THEOREM**
  - 1.2A.7.D: determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;
- **RATIONAL ROOT THEOREM**
  - 1.2A.7.D: determine the linear factors of a polynomial function of degree three and of degree four using algebraic methods;

Unit 10: Polynomial Functions

- **GRAPHS OF POLYNOMIAL FUNCTIONS**
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 6.2A.6.A: analyze the effect on the graphs of f(x) = x and f(x) = x when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;

Unit 11: Radical and Rational Expressions

- **OPERATIONS WITH RATIONAL EXPRESSIONS**
  - 1.2A.7.F: determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two;
- **ADVANCED PROPERTIES OF SQUARE ROOT EXPRESSIONS**
  - 1.2A.7.G: rewrite radical expressions that contain variables to equivalent forms;

Unit 12: Graphs of Rational Functions

- **ANALYZING GRAPHS OF RATIONAL FUNCTIONS**
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 6.2A.6.G: analyze the effect on the graphs of f(x) = 1/x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 6.2A.6.K: determine the asymptotic restrictions on the domain of a rational function and represent domain and range using interval notation, inequalities, and set notation; and

Unit 13: Rational Equations and Functions

- **SOLVING RATIONAL EQUATIONS**
  - 6.2A.6.I: solve rational equations that have real solutions;
  - 6.2A.6.J: determine the reasonableness of a solution to a rational equation;

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- **MODELING SITUATIONS WITH RATIONAL FUNCTIONS**
  - 6.2A.6.H: formulate rational equations that model real-world situations;
  - 6.2A.6.J: determine the reasonableness of a solution to a rational equation;
  - 6.2A.6.I: solve rational equations that have real solutions;
- **MODELING SITUATIONS WITH DIRECT AND INVERSE VARIATION**
  - 6.2A.6.L: formulate and solve equations involving inverse variation.
  - 6.2A.6.H: formulate rational equations that model real-world situations;

Unit 14: Solving Radical Equations

- **SOLVING SQUARE ROOT EQUATIONS**
  - 4.2A.4.F: solve quadratic and square root equations;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 4.2A.4.C: determine the effect on the graph of f(x) = x when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;
  - 4.2A.4.G: identify extraneous solutions of square root equations; and

Unit 15: Graphing Radical Functions

- **ANALYZING GRAPHS OF SQUARE ROOT FUNCTIONS**
  - 4.2A.4.C: determine the effect on the graph of f(x) = x when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 2.2A.2.C: describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range; and
  - 1.2A.7.I: write the domain and range of a function in interval notation, inequalities, and set notation.

Unit 16: Exponential and Logarithmic Functions

- **EXPONENTIAL FUNCTIONS**
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 5.2A.5.B: formulate exponential and logarithmic equations that model real-world situations, including exponential relationships written in recursive notation;
- **SOLVING EXPONENTIAL EQUATIONS**

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- 5.2A.5.D: solve exponential equations of the form y = ab to the x power where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions; and

- **LOGARITHMIC FUNCTIONS**
  - 2.2A.2.B: graph and write the inverse of a function using notation such as f- (x);
  - 2.2A.2.C: describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range; and
  - 5.2A.5.C: rewrite exponential equations as their corresponding logarithmic equations and logarithmic equations as their corresponding exponential equations;
  - 5.2A.5.E: determine the reasonableness of a solution to a logarithmic equation.
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;

Unit 17: Logarithmic Expressions

- **EVALUATING LOGARITHMIC EXPRESSIONS**
  - 2.2A.2.B: graph and write the inverse of a function using notation such as f- (x);

Unit 18: Logarithmic Equations

- **SOLVING LOGARITHMIC EQUATIONS**
  - 5.2A.5.D: solve exponential equations of the form y = ab to the x power where a is a nonzero real number and b is greater than zero and not equal to one and single logarithmic equations having real solutions; and
  - 5.2A.5.E: determine the reasonableness of a solution to a logarithmic equation.

Unit 19: Nonlinear Systems of Equations

- **SYSTEMS OF NONLINEAR EQUATIONS**
  - 3.2A.3.D: determine the reasonableness of solutions to systems of a linear equation and a quadratic equation in two variables;
  - 3.2A.3.C: solve, algebraically, systems of two equations in two variables consisting of a linear equation and a quadratic equation;

Unit 20: Parent Functions

- **PARENT FUNCTIONS**
  - 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 6.2A.6.A: analyze the effect on the graphs of f(x) = x and f(x) = x when f(x) is replaced by af(x), f(bx), f(x - c), and f(x) + d for specific positive and negative real values of a, b, c, and d;

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- 6.2A.6.G: analyze the effect on the graphs of f(x) = 1/x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
- 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
- 1.2A.7.I: write the domain and range of a function in interval notation, inequalities, and set notation.
- 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;

Unit 21: Transformations of Parent Functions

- **TRANSFORMATIONS OF PARENT FUNCTIONS**
  - 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 5.2A.5.A: determine the effects on the key attributes on the graphs of f(x) = b to the x power and f(x) = log base-b (x) where b is 2, 10, and e when f(x) is replaced by af(x), f(x) + d, and f(x - c) for specific positive and negative real values of a, c, and d;
  - 6.2A.6.G: analyze the effect on the graphs of f(x) = 1/x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
- **MULTIPLE TRANSFORMATIONS OF PARENT FUNCTIONS**
  - 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 6.2A.6.C: analyze the effect on the graphs of f(x) = x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
  - 2.2A.2.A: graph the functions f(x)=x, f(x)=1/x, f(x)=x, f(x)= x, f(x)=b to the x power, f(x)=x, and f(x)=log base-b (x) where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;
  - 4.2A.4.C: determine the effect on the graph of f(x) = x when f(x) is replaced by af(x), f(x) + d, f(bx), and f(x - c) for specific positive and negative values of a, b, c, and d;

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- 6.2A.6.G: analyze the effect on the graphs of f(x) = 1/x when f(x) is replaced by af(x), f(bx), f(x-c), and f(x) + d for specific positive and negative real values of a, b, c, and d;
- 5.2A.5.A: determine the effects on the key attributes on the graphs of f(x) = b to the x power and f(x) = log base-b (x) where b is 2, 10, and e when f(x) is replaced by af(x), f(x) + d, and f(x - c) for specific positive and negative real values of a, c, and d;

Unit 22: Inverse Functions

- **INVERSE FUNCTIONS**
  - 2.2A.2.C: describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range; and
  - 2.2A.2.B: graph and write the inverse of a function using notation such as f- (x);

Unit 23: Scatterplots and Modeling

- **SCATTERPLOTS AND MODELING**
  - 4.2A.4.E: formulate quadratic and square root equations using technology given a table of data;
  - 2.2A.8.A: analyze data to select the appropriate model from among linear, quadratic, and exponential models;
  - 2.2A.8.B: use regression methods available through technology to write a linear function, a quadratic function, and an exponential function from a given set of data; and
  - 2.2A.8.C: predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models.

Unit 24: Test-Taking Strategies

- **STUDY HABITS**
- **BEING PREPARED AND GETTING STARTED**
- **WORDING IN TEST QUESTIONS**
- **WORDING IN ANSWER CHOICES**
- **QUESTIONS WITH PASSAGES AND VISUAL DATA**
- **ESSAY AND SHORT ANSWER QUESTIONS**
- **WORD PROBLEMS**

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