SOL EOC Tutorials for Virginia are designed specifically for the Virginia Standards of Learning to prepare students for the Standards of Learning tests.

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.

1. REAL NUMBERS

- **LAWS OF EXPONENTS**
  - **EO.A.2.a** *applying the laws of exponents to perform operations on expressions;*
  - **EO.A.3.b** *cube roots of integers; and*
  - **EO.A.3.a** *square roots of whole numbers and monomial algebraic expressions;*
  - **EO.A.3.c** *numerical expressions containing square or cube roots.*

- **SIMPLIFYING SQUARE ROOTS**
  - **EO.A.3.a** *square roots of whole numbers and monomial algebraic expressions;*
  - **EO.A.3.b** *cube roots of integers; and*
  - **EO.A.3.c** *numerical expressions containing square or cube roots.*

2. ALGEBRAIC EXPRESSIONS

- **FORMULATING AND SIMPLIFYING ALGEBRAIC EXPRESSIONS**
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **EO.A.1.b** *evaluate algebraic expressions for given replacement values of the variables.*

3. EQUATIONS

- **AXIOMS OF EQUALITY**
  - **EI.A.4.a** *multistep linear equations in one variable algebraically;*
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*

- **MULTI-STEP EQUATIONS AND INEQUALITIES**
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*

- **EI.A.5.c** *solve practical problems involving inequalities; and*
- **EI.A.4.a** *multistep linear equations in one variable algebraically;*
- **EI.A.4.e** *practical problems involving equations and systems of equations.*
- **EI.A.5.a** *solve multistep linear inequalities in one variable algebraically and represent the solution graphically;*

- **LITERAL EQUATIONS**
  - **EI.A.4.c** *literal equations for a specified variable;*
  - **EO.A.3.a** *square roots of whole numbers and monomial algebraic expressions;*

4. FUNCTIONS

- **FUNCTIONS AND RELATIONS**
  - **F.A.7.a** *determining whether a relation is a function;*

- **DOMAIN AND RANGE**
  - **F.A.7.b** *domain and range;*

- **EVALUATING FUNCTIONS**
  - **EO.A.1.b** *evaluate algebraic expressions for given replacement values of the variables.*
  - **F.A.7.e** *values of a function for elements in its domain; and*

- **MULTIPLE REPRESENTATIONS OF FUNCTIONS**
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **F.A.7.f** *connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.*

5. LINEAR EQUATIONS

- **SLOPE**
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*

- **SLOPE-INTERCEPT FORM OF A LINEAR EQUATION**
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*
  - **EI.A.6.b** *write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line; and*
  - **F.A.7.d** *intercepts;*
  - **EI.A.6.c** *graph linear equations in two variables.*
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

- **POINT-SLOPE FORM OF A LINEAR EQUATION**
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*
  - **EI.A.6.b** *write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line; and*
  - **EI.A.6.c** *graph linear equations in two variables.*
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*
  - **F.A.7.d** *intercepts;*

6. LINEAR FUNCTIONS

- **GRAPHING AND ANALYZING LINEAR FUNCTIONS**
  - **F.A.7.f** *connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.*
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **F.A.7.d** *intercepts;*
  - **F.A.7.b** *domain and range;*
  - **EI.A.6.c** *graph linear equations in two variables.*
  - **F.A.7.c** *zeros;*

- **GRAPHING AND MANIPULATING Y = MX + B**
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*
  - **EI.A.6.b** *write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line; and*
  - **EI.A.6.c** *graph linear equations in two variables.*
  - **F.A.7.d** *intercepts;*
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

7. LINEAR SYSTEMS

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: GRAPHING**
  - **EI.A.4.d** *systems of two linear equations in two variables algebraically and graphically; and*
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*
  - **EI.A.5.d** *represent the solution to a system of inequalities graphically.*
  - **EI.A.6.c** *graph linear equations in two variables.*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: SUBSTITUTION**
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*
  - **EI.A.4.d** *systems of two linear equations in two variables algebraically and graphically; and*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: ELIMINATION**
  - **EI.A.4.d** *systems of two linear equations in two variables algebraically and graphically; and*
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*

8. INEQUALITIES

- **GRAPHS OF LINEAR INEQUALITIES**
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **EI.A.5.a** *solve multistep linear inequalities in one variable algebraically and represent the solution graphically;*
  - **EI.A.5.b** *represent the solution of linear inequalities in two variables graphically;*
  - **EI.A.5.c** *solve practical problems involving inequalities; and*

- **SOLVING SYSTEMS OF LINEAR INEQUALITIES**
  - **EI.A.5.c** *solve practical problems involving inequalities; and*
  - **EI.A.5.b** *represent the solution of linear inequalities in two variables graphically;*
  - **EI.A.5.d** *represent the solution to a system of inequalities graphically.*
  - **EI.A.5.a** *solve multistep linear inequalities in one variable algebraically and represent the solution graphically;*

9. POLYNOMIALS

- **POLYNOMIAL BASICS**
  - **EO.A.1.b** *evaluate algebraic expressions for given replacement values of the variables.*
  - **EO.A.2.b** *adding, subtracting, multiplying, and dividing polynomials; and*

- **ADDITION AND SUBTRACTION OF POLYNOMIALS**
  - **EO.A.2.b** *adding, subtracting, multiplying, and dividing polynomials; and*

- **MULTIPLICATION OF POLYNOMIALS**
  - **EO.A.2.b** *adding, subtracting, multiplying, and dividing polynomials; and*

- **DIVISION OF POLYNOMIALS**
  - **EO.A.2.b** *adding, subtracting, multiplying, and dividing polynomials; and*

10. FACTORING

- **FACTORING QUADRATIC TRINOMIALS**
  - **EO.A.2.c** *factoring completely first- and second-degree binomials and trinomials in one variable.*
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*

- **FACTORING SPECIAL CASES**
  - **EO.A.2.c** *factoring completely first- and second-degree binomials and trinomials in one variable.*

11. QUADRATIC FUNCTIONS

- **QUADRATIC FUNCTIONS**
  - **F.A.7.c** *zeros;*
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **EI.A.4.b** *quadratic equations in one variable algebraically;*
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

- **SOLVING QUADRATIC EQUATIONS BY FACTORING**
  - **EI.A.4.b** *quadratic equations in one variable algebraically;*
  - **F.A.7.c** *zeros;*
  - **EO.A.2.c** *factoring completely first- and second-degree binomials and trinomials in one variable.*

- **QUADRATIC FORMULA**
  - **F.A.7.f** *connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.*
  - **EI.A.4.b** *quadratic equations in one variable algebraically;*
  - **F.A.7.c** *zeros;*
  - **EO.A.3.a** *square roots of whole numbers and monomial algebraic expressions;*

12. GRAPHS OF QUADRATIC FUNCTIONS

- **ANALYZING GRAPHS OF QUADRATIC FUNCTIONS**
  - **F.A.7.f** *connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.*
  - **F.A.7.b** *domain and range;*
  - **F.A.7.d** *intercepts;*

- **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
- **F.A.7.c** *zeros;*
- **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

13. DIRECT AND INVERSE VARIATION

- **DIRECT VARIATION**
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*
  - **S.A.8** *The student, given a data set or practical situation, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.*
  - **EI.A.4.e** *practical problems involving equations and systems of equations.*
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*

- **INVERSE VARIATION**
  - **S.A.8** *The student, given a data set or practical situation, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.*

- **MODELING SITUATIONS WITH DIRECT AND INVERSE VARIATION**
  - **S.A.8** *The student, given a data set or practical situation, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.*
  - **EO.A.1.a** *represent verbal quantitative situations algebraically; and*

14. STATISTICS

- **DATA ANALYSIS**
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

- **SCATTERPLOTS**
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*
  - **EI.A.6.a** *determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;*

- **SCATTERPLOTS AND MODELING**
  - **S.A.9** *The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.*

15. 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**