

Tutorials 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.

1. RATIOS AND PERCENT

• RATIOS

- **NS.6.1** *The student will represent relationships between quantities using ratios, and will use appropriate notations, such as a/b , a to b , and $a:b$.*
- **MG.6.8.b** *identify the coordinates of a point and graph ordered pairs in a coordinate plane.*

• SOLVING PERCENT PROBLEMS

- **NS.6.2.a** *represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and*

2. PROPORTIONAL RELATIONSHIPS

• IDENTIFYING PROPORTIONAL RELATIONSHIPS

- **PFA.6.12.c** *determine whether a proportional relationship exists between two quantities; and*
- **PFA.6.12.a** *represent a proportional relationship between two quantities, including those arising from practical situations;*
- **PFA.6.12.d** *make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.*

• ANALYZING PROPORTIONAL RELATIONSHIPS

- **PFA.6.12.b** *determine the unit rate of a proportional relationship and use it to find a missing value in a ratio table;*
- **PFA.6.12.d** *make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.*

3. SOLVING PROBLEMS WITH PROPORTIONS

• REPRESENTING PROPORTIONAL RELATIONSHIPS

- **PFA.6.12.c** *determine whether a proportional relationship exists between two quantities; and*
- **PFA.6.12.d** *make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.*
- **PFA.6.12.a** *represent a proportional relationship between two quantities, including those arising from practical situations;*

- **USING PROPORTIONS TO SOLVE PROBLEMS**

- **PFA.6.12.a** represent a proportional relationship between two quantities, including those arising from practical situations;

4. RATIONAL AND IRRATIONAL NUMBERS

- **RATIONAL AND IRRATIONAL NUMBERS**

- **NS.6.2.a** represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and

- **APPROXIMATING IRRATIONAL NUMBERS**

- **NS.6.2.b** compare and order positive rational numbers.

5. OPERATIONS WITH FRACTIONS

- **DIVIDING FRACTIONS**

- **CE.6.5.a** multiply and divide fractions and mixed numbers;
- **CE.6.5.b** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and

- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**

- **CE.6.5.a** multiply and divide fractions and mixed numbers;
- **CE.6.5.b** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and

6. DECIMAL OPERATIONS

- **DECIMAL OPERATIONS**

- **CE.6.5.c** solve multistep practical problems involving addition, subtraction, multiplication, and division of decimals.
- **NS.6.2.a** represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and

- **EXPRESSING RATIONAL NUMBERS IN DECIMAL FORM**

- **NS.6.2.a** represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and
- **NS.6.2.b** compare and order positive rational numbers.

7. ADDING AND SUBTRACTING RATIONAL NUMBERS

- **ADDING RATIONAL NUMBERS**

- **NS.6.3.c** identify and describe absolute value of integers.
- **CE.6.6.a** add, subtract, multiply, and divide integers;
- **CE.6.5.b** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and

- **SUBTRACTING RATIONAL NUMBERS**

- **CE.6.5.b** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and

8. USING PROPERTIES WITH RATIONAL NUMBERS

- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**

- **CE.6.5.b** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and

- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**

- **CE.6.6.a** *add, subtract, multiply, and divide integers;*

9. SIGNED NUMBERS

- **SIGNED NUMBERS**

- **CE.6.6.b** *solve practical problems involving operations with integers; and*
- **NS.6.2.b** *compare and order positive rational numbers.*
- **NS.6.3.c** *identify and describe absolute value of integers.*
- **NS.6.3.a** *identify and represent integers;*
- **NS.6.3.b** *compare and order integers; and*

- **INEQUALITIES AND COMPARISON**

- **NS.6.2.b** *compare and order positive rational numbers.*
- **NS.6.3.b** *compare and order integers; and*

- **ABSOLUTE VALUE**

- **NS.6.3.c** *identify and describe absolute value of integers.*
- **NS.6.3.b** *compare and order integers; and*

10. THE COORDINATE PLANE

- **PLOTTING POINTS IN THE COORDINATE PLANE**

- **MG.6.8.a** *identify the components of the coordinate plane; and*
- **MG.6.8.b** *identify the coordinates of a point and graph ordered pairs in a coordinate plane.*

- **QUADRANTS AND AXES**

- **MG.6.8.a** *identify the components of the coordinate plane; and*
- **MG.6.8.b** *identify the coordinates of a point and graph ordered pairs in a coordinate plane.*

11. NUMERICAL AND ALGEBRAIC EXPRESSIONS

- **EXPONENTS**

- **NS.6.4** *The student will recognize and represent patterns with whole number exponents and perfect squares.*

- **EVALUATING EXPRESSIONS**

- **CE.6.6.a** *add, subtract, multiply, and divide integers;*
- **CE.6.6.b** *solve practical problems involving operations with integers; and*
- **CE.6.6.c** *simplify numerical expressions involving integers.*

- **EQUIVALENT EXPRESSIONS**

- **CE.6.6.a** *add, subtract, multiply, and divide integers;*
- **CE.6.6.b** *solve practical problems involving operations with integers; and*

12. SOLVING EQUATIONS

- **SOLVING ADDITION EQUATIONS**

- **PFA.6.13** *The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.*

- **SOLVING MULTIPLICATION EQUATIONS**

- **PFA.6.13** *The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.*

13. SOLVING INEQUALITIES

- **SOLVING INEQUALITIES**

- **PFA.6.14.a** *represent a practical situation with a linear inequality in one variable; and*
- **PFA.6.14.b** *solve one-step linear inequalities in one variable, involving addition or subtraction, and graph the solution on a number line.*

- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**

- **PFA.6.13** *The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.*
- **PFA.6.14.a** *represent a practical situation with a linear inequality in one variable; and*
- **PFA.6.14.b** *solve one-step linear inequalities in one variable, involving addition or subtraction, and graph the solution on a number line.*

14. GEOMETRY

- **CIRCLES**

- **MG.6.7.a** *derive π ;*
- **MG.6.7.b** *solve problems, including practical problems, involving circumference and area of a circle; and*

- **AREA**

- **MG.6.7.c** *solve problems, including practical problems, involving area and perimeter of triangles and rectangles.*

15. TRANSFORMATIONS

- **BASICS OF TRANSFORMATIONS**

- **MG.6.9** *The student will determine congruence of segments, angles, and polygons.*

- **T TRANSFORMATIONS AND CONGRUENCE**

- **MG.6.9** *The student will determine congruence of segments, angles, and polygons.*

16. MEASURES OF CENTER

- **MEASURES OF CENTER AND VARIABILITY**

- **PS.6.11.a** *represent the mean of a data set graphically as the balance point; and*

- **DOT PLOTS AND HISTOGRAMS**

- **PS.6.11.a** *represent the mean of a data set graphically as the balance point; and*

17. SUMMARIZING DATA SETS

- **SUMMARIZING DATA USING MEASURES OF CENTER AND VARIABILITY**

- **PS.6.11.a** *represent the mean of a data set graphically as the balance point; and*

- **CHOOSING APPROPRIATE MEASURES TO SUMMARIZE DATA SETS**

- **PS.6.11.a** *represent the mean of a data set graphically as the balance point; and*

