Pennsylvania Tutorials are designed specifically for the Pennsylvania Core Standards and the Pennsylvania Academic Standards to prepare students for the Keystone Exams and the Pennsylvania System of School Assessment (PSSA).

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.

Unit 1: Rate, Ratio, and Proportion

- **UNIT RATES**
  - CC.2.1.7.D.1: Numbers and Operations Ratios & Proportional Relationships Analyze proportional relationships and use them to model and solve real-world and mathematical problems.
- **IDENTIFYING PROPORTIONAL RELATIONSHIPS**
  - CC.2.1.7.D.1: Numbers and Operations Ratios & Proportional Relationships Analyze proportional relationships and use them to model and solve real-world and mathematical problems.
- **ANALYZING PROPORTIONAL RELATIONSHIPS**
  - CC.2.1.7.D.1: Numbers and Operations Ratios & Proportional Relationships Analyze proportional relationships and use them to model and solve real-world and mathematical problems.
- **REPRESENTING PROPORTIONAL RELATIONSHIPS**
  - CC.2.1.7.D.1: Numbers and Operations Ratios & Proportional Relationships Analyze proportional relationships and use them to model and solve real-world and mathematical problems.
- **USING PROPORTIONS TO SOLVE PROBLEMS**

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- CC.2.1.7.D.1: Numbers and Operations Ratios & Proportional Relationships Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

Unit 2: Addition and Subtraction of Rational Numbers

- **ADDING RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
- **SUBTRACTING RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **USING PROPERTIES TO ADD AND SUBTRACT RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Unit 3: Multiplication and Division of Rational Numbers

- **MULTIPLYING RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **DIVIDING RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **USING PROPERTIES TO MULTIPLY AND DIVIDE RATIONAL NUMBERS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical

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representations.

- **EXPRESSING RATIONAL NUMBERS IN DECIMAL FORM**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **USING OPERATIONS ON RATIONAL NUMBERS TO SOLVE PROBLEMS**
  - CC.2.1.7.E.1: Numbers and Operations The Number System Apply and extend previous understandings of operations with fractions to operations with rational numbers.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Unit 4: Algebraic Expressions, Equations, and Inequalities

- **SIMPLIFYING AND REWRITING ALGEBRAIC EXPRESSIONS**
  - CC.2.2.7.B.1: Algebraic Concepts Expressions and Equations Apply properties of operations to generate equivalent expressions.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **SOLVING MULTI-STEP PROBLEMS WITH RATIONAL NUMBERS**
  - CC.2.2.7.B.1: Algebraic Concepts Expressions and Equations Apply properties of operations to generate equivalent expressions.
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **SOLVING TWO-STEP EQUATIONS**
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
- **SOLVING LINEAR INEQUALITIES**
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Unit 5: Drawing, Constructing, and Exploring Geometric Figures

- **SCALE DRAWINGS**

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- CC.2.3.7.A.2: Geometry Geometry Visualize and represent geometric figures and describe the relationships between them.
- CC.2.3.7.A.1: Geometry Geometry Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

- **GEOMETRIC DRAWINGS**
  - CC.2.3.7.A.2: Geometry Geometry Visualize and represent geometric figures and describe the relationships between them.
- **CROSS-SECTIONS OF GEOMETRIC SOLIDS**
  - CC.2.3.7.A.2: Geometry Geometry Visualize and represent geometric figures and describe the relationships between them.

Unit 6: Geometry in Two and Three Dimensions

- **CIRCLES**
  - CC.2.3.7.A.1: Geometry Geometry Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.
  - CC.2.3.7.A.2: Geometry Geometry Visualize and represent geometric figures and describe the relationships between them.
- **ANGLE RELATIONSHIPS**
  - CC.2.3.7.A.2: Geometry Geometry Visualize and represent geometric figures and describe the relationships between them.
  - CC.2.3.7.A.1: Geometry Geometry Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.
- **AREA, VOLUME, AND SURFACE AREA**
  - CC.2.3.7.A.1: Geometry Geometry Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

Unit 7: Statistics and Sampling

- **POPULATIONS AND SAMPLES**
  - CC.2.4.7.B.1: Measurement, Data, and Probability Statistics and Probability Draw inferences about populations based on random sampling concepts.
- **COMPARING DATA SETS VISUALLY**
  - CC.2.2.7.B.3: Algebraic Concepts Expressions and Equations Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.
  - CC.2.4.7.B.2: Measurement, Data, and Probability Statistics and Probability Draw informal comparative inferences about two populations.
- **USING STATISTICAL MEASURES TO COMPARE DATA SETS**

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- CC.2.4.7.B.2: Measurement, Data, and Probability Statistics and Probability Draw informal comparative inferences about two populations.

Unit 8: Probability

- **PROBABILITY**
  - CC.2.4.7.B.1: Measurement, Data, and Probability Statistics and Probability Draw inferences about populations based on random sampling concepts.
- **CALCULATING PROBABILITY**
  - CC.2.4.7.B.3: Measurement, Data, and Probability Statistics and Probability Investigate chance processes and develop, use, and evaluate probability models.
- **PROBABILITY OF COMPOUND EVENTS**
  - CC.2.4.7.B.3: Measurement, Data, and Probability Statistics and Probability Investigate chance processes and develop, use, and evaluate probability models.
- **SIMULATIONS**
  - CC.2.4.7.B.3: Measurement, Data, and Probability Statistics and Probability Investigate chance processes and develop, use, and evaluate probability models.

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