<table>
<thead>
<tr>
<th>Grade</th>
<th>Big Idea</th>
<th>Essential Questions</th>
<th>Concepts</th>
<th>Competencies</th>
<th>Standard</th>
<th>Eligible Content</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-K</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Numerical Sequence</td>
<td>Rote count to 20. Name numerals up to 10. Represent a number of objects with a written numeral 0-10.</td>
<td>CC.2.1.PREK.A.1</td>
<td></td>
<td>Above Addition Below Beside Between Circle Cone Cube Cylinder Equal Greater than Length Less than Measure Numeral Rectangle Sphere Square</td>
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<tr>
<td></td>
<td></td>
<td>How can mathematics support effective communication?</td>
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<tr>
<td></td>
<td></td>
<td>Patterns exhibit relationships that can be extended, described, and generalized.</td>
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</tr>
<tr>
<td>Pre-K</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Object Quantity</td>
<td>Recognize small quantities up to 6. Use a one-to-one correspondence when counting to 10. State the total number of objects counted, demonstrating understanding that that number named tells the number of objects counted.</td>
<td>CC.2.1.PREK.A.2</td>
<td></td>
<td>Cone Cube Cylinder Equal Greater than Length Less than Measure Numeral Rectangle Sphere Square</td>
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<tr>
<td></td>
<td></td>
<td>How can mathematics support effective communication?</td>
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<td></td>
<td>How can patterns be used to describe relationships in mathematical situations?</td>
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<tr>
<td>Pre-K</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Number Comparison</td>
<td>Identify whether the number of objects in one group is greater than, less than or equal to the number of objects in another group up to 10. Compare two numbers between 1 and 5 when presented as written numerals.</td>
<td>CC.2.1.PREK.A.3</td>
<td></td>
<td>Subtraction Three dimensional shapes Triangle Two dimensional shapes Weight</td>
</tr>
<tr>
<td></td>
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<td>How can mathematics support effective communication?</td>
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<tr>
<td>K</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Numerical Sequence</td>
<td>Rote count to 100. Count forward beginning from a given number within the known sequence (instead of having to begin at 1). Name numerals 0 – 20. Represent a number of objects with a written numeral 0-20.</td>
<td>CC.2.1.K.A.1</td>
<td></td>
<td>Addition Area Capacity Circle Cone Corners (vertices) Cube Cylinder Digit Equal Greater than</td>
</tr>
</tbody>
</table>
## Grade K

### Big Idea
- Mathematical relationships among numbers can be represented, compared, and communicated.
- Patterns exhibit relationships that can be extended, described, and generalized.

### Essential Questions
- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- How can patterns be used to describe relationships in mathematical situations?

### Concepts
- Object Quantity

### Competencies
- Uses one-to-one correspondence when counting to 20.
- State the total number of objects counted, demonstrating understanding that that last number named tells the number of objects counted.
- Understand that each successive number name refers to a quantity that is one larger.

### Standard
- CC.2.1.K.A.2

### Eligible Content
- Length
- Less than
- Place value
- Quantity
- Rectangle
- Sides
- Sphere
- Square
- Subtraction
- Tens
- Total
- Triangle
- Weight

### Vocabulary
- Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
- When is it appropriate to estimate versus calculate?
- What makes a tool and/or strategy appropriate for a given task?

### Grade K

### Essential Questions
- How is mathematics used to quantify, compare, represent, and model numbers?
- How can mathematics support effective communication?
- How can patterns be used to describe relationships in mathematical situations?

### Concepts
- Number Comparison

### Competencies
- Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
- Compare two numbers between 1 and 10 presented as written numerals.

### Standard
- CC.2.1.K.A.3

### Eligible Content
- Numerical Sequence

### Vocabulary
- Count to 120, starting at any number less than 120.

### Grade 1

### Essential Questions
- How is mathematics used to quantify, compare, represent, and model numbers?

### Concepts
- Numerical Sequence

### Competencies
- Count to 120, starting at any number less than 120.

### Standard
- CC.2.1.1.B.1

### Eligible Content
- Addend
- Analog
<table>
<thead>
<tr>
<th>Grade</th>
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<td>communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Patterns exhibit relationships that can be extended, described, and generalized.</td>
<td>How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task? How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Place Value</td>
<td>Read and write numerals up to 120 and represent a number of objects with a written numeral.</td>
<td>CC.2.1.1.B.2 CC.2.1.1.B.3</td>
<td>Circle Compare compose/ Cone Counting on Cube Cylinder Data decompose Equal to Fourths Fractions – Greater than Half circles</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task? How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Place Value</td>
<td>Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols &gt;, =, and &lt;. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10 using concrete models or drawings. Relate the strategy to a written method and explain the reasoning used. Subtract multiples of 10 in the range 10-90, using concrete models or drawings. Relate the strategy to a written method and explain the reasoning used.</td>
<td>CC.2.1.1.B.2 CC.2.1.1.B.3</td>
<td>Half-hour Halves Hour Length Less than Making ten Ones Place value Quarter-circles Quarters Rectangle Rectangular Prism Square Subtraction Sum Tens Trapezoids Triangle</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mathematical relationships among numbers can be represented, compared, and</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Place Value</td>
<td>Understand that the three digits of a three-digit number represent amounts of</td>
<td>CC.2.1.2.B.1 CC.2.1.2.B.2</td>
<td>A.M. Addend Analog/digital</td>
<td></td>
</tr>
</tbody>
</table>
Mathematical relationships among numbers can be represented, compared, and communicated.

2

Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.

Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.

Patterns exhibit relationships that can be extended, described, and generalized.

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2

Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.

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Patterns exhibit relationships that can be extended, described, and generalized.
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<tr>
<td>3</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task? When is it appropriate to estimate versus calculate? How can patterns be used to describe relationships in mathematical situations?</td>
<td>Place Value and Properties of Operations</td>
<td>Perform multi-digit arithmetic. Demonstrate fluency of addition and subtraction. Round whole numbers to the nearest ten or hundred.</td>
<td>CC.2.1.3.B.1</td>
<td>M03.A-T.1.1.1 M03.A-T.1.1.2 M03.A-T.1.1.3 M03.A-T.1.1.4</td>
<td>Area Denominator Division Equivalent fractions Estimate Fraction Linear Liquid Volume Mass Numerator Pattern Pentagon Perimeter Pictograph Polygon Quadrilateral Rhombus Round Square Unit Tally Chart Temperature</td>
</tr>
<tr>
<td>3</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?</td>
<td>Fractions</td>
<td>Develop an understanding of fractions as numbers. Represent fractions on a number line. Represent and generate equivalent fractions. Compare fractions with the same numerator or same denominator.</td>
<td>CC.2.1.3.C.1</td>
<td>M03.A-F.1.1.1 M03.A-F.1.1.2 M03.A-F.1.1.3 M03.A-F.1.1.4 M03.A-F.1.1.5</td>
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<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? When is it appropriate to estimate versus calculate? What makes a tool and/or strategy appropriate for a given task?</td>
<td>Fractions</td>
<td>Demonstrate an understanding of fraction equivalence. Compare and order fractions. Solve problems involving fractions and mixed numbers.</td>
<td>CC.2.1.4.C.1 CC.2.1.4.C.2</td>
<td>M04.A-F.1.1.1 M04.A-F.1.1.2 M04.A-F.2.1.1 M04.A-F.2.1.2 M04.A-F.2.1.3 M04.A-F.2.1.4 M04.A-F.2.1.5 M04.A-F.2.1.6 M04.A-F.2.1.7</td>
<td></td>
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<tr>
<td>4</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Decimals</td>
<td>Use decimal notation for</td>
<td>CC.2.1.4.C.3</td>
<td>M04.A-F.3.1.1</td>
<td></td>
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</table>
## PA Core Standards for Mathematics
### 2.1 Numbers and Operations PreK-12

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<td>among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Patterns exhibit relationships that can be extended, described, and generalized.</td>
<td>compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?</td>
<td>decimal fractions. Compare decimal fractions. Compare decimals.</td>
<td>M04.A-F.3.1.2 M04.A-F.3.1.3</td>
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<td>5</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? When is it appropriate to estimate versus calculate? What makes a tool and/or strategy appropriate for a given task?</td>
<td>Place Value and Properties of Operations Demonstrate an understanding of rounding as it pertains to whole numbers and decimals. Read, write and compare decimals. Use whole numbers and decimals to compute accurately.</td>
<td>CC.2.1.5.B.1 CC.2.1.5.B.2 M05.A-T.1.1.1 M05.A-T.1.1.2 M05.A-T.1.1.3 M05.A-T.1.1.4 M05.A-T.1.1.5 M05.A-T.2.1.1 M05.A-T.2.1.2 M05.A-T.2.1.3</td>
<td>Braces Brackets Coordinate Plane Cubic Units Decimal Place Value (through thousandths) Measurement Units Numerical Expressions Order of Operations Origin Parentheses Scaling (resizing) Unit Fraction Volume X-axis X-coordinate Y-axis Y-coordinate</td>
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<tr>
<td>Grade</td>
<td>Big Idea</td>
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<td>Fractions</td>
<td>Add, Subtract, Multiply and Divide fractions to solve problems. Explain operations as they pertain to fractions.</td>
<td>CC.2.1.5.C.1 CC.2.1.5.C.2</td>
<td>M05.A.F.1.1.1 M05.A.F.2.1.1 M05.A.F.2.1.2 M05.A.F.2.1.3 M05.A.F.2.1.4</td>
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<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? When is it appropriate to estimate versus calculate?</td>
<td>Decimals</td>
<td>Read, write and compare decimals. Use whole numbers and decimals to compute accurately.</td>
<td>CC.2.1.5.B.2</td>
<td>M05.A.T.1.1 M05.A.T.2.1.2 M05.A.T.2.1.3</td>
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<tr>
<td>6</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent and model numbers?</td>
<td>Ratios, Proportions, and Percent</td>
<td>Represent ratio relationships in various forms. Determine unit rates in context.</td>
<td>CC.2.1.6.D.1</td>
<td>M06.A.R.1.1.1 M06.A.R.1.1.2 M06.A.R.1.1.3 M06.A.R.1.1.4</td>
<td>Absolute value Algebraic expressions Box and whisker plots Coefficient</td>
</tr>
</tbody>
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### PA Core Standards for Mathematics
#### 2.1 Numbers and Operations PreK-12

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<tr>
<td>6</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Number Theory Concepts and Operations</td>
<td>Solve problems and compute fluently with whole numbers and decimals.</td>
<td>CC.2.1.6.E.2</td>
<td>M06.A-N.2.1.1</td>
<td>Compound polygon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do numbers relate to one another?</td>
<td></td>
<td>Find common multiples and factors including greatest common factor and least common multiple.</td>
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<td>Dependent variable</td>
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<td></td>
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<td>How can mathematics support effective communication?</td>
<td></td>
<td>Use the distributive property to express a sum of two numbers.</td>
<td></td>
<td></td>
<td>Distributive property</td>
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<tr>
<td></td>
<td></td>
<td>How can patterns be used to describe relationships in mathematical situations?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dot plots</td>
</tr>
<tr>
<td>6</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Integers and Other Rational Numbers</td>
<td>Use positive and negative numbers to represent quantities in real world contexts.</td>
<td>CC.2.1.6.E.4</td>
<td>M06.A-N.3.1.1</td>
<td>Exponent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How do numbers relate to one another?</td>
<td></td>
<td>Plot integers and other rational numbers on a number line and on a coordinate graph.</td>
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<td>Greatest Common Factor</td>
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<tr>
<td></td>
<td></td>
<td>How can mathematics support effective communication?</td>
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<td></td>
<td></td>
<td></td>
<td>Integer</td>
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<td></td>
<td></td>
<td>How are relationships represented mathematically?</td>
<td></td>
<td>Interpret the opposite and</td>
<td></td>
<td></td>
<td>Inequality</td>
</tr>
</tbody>
</table>

**Vocabulary:**
- Compound polygon
- Dependent variable
- Distributive property
- Dot plots
- Exponent
- Greatest Common Factor
- Integer
- Inequality
- Mean
- Mean absolute deviation
- Irregular Polygon
- Least Common Multiple
- Minus
- Multiple
- Number
- Other
- Quotient
- Rational
- Solves
- Solution
- Solve
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<td>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
<td>How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What makes a tool and/or strategy appropriate for a given task?</td>
<td>absolute value of an integer as its distance from zero on a number line</td>
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</tr>
<tr>
<td>7</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task? How can recognizing repetition or regularity assist in solving problems more efficiently?</td>
<td>Ratios, Proportions, and Percent</td>
<td>Compute unit rates associated with ratios of fractions. Recognize and represent proportional relationships between quantities. Use proportional relationships to solve multistep ratio and percent problems.</td>
<td>CC.2.1.7.D.1</td>
<td>M07.A-R.1.1.1 M07.A-R.1.1.2 M07.A-R.1.1.3 M07.A-R.1.1.4 M07.A-R.1.1.5 M07.A-R.1.1.6</td>
<td>Acute triangle Adjacent angles Alternate exterior angles Alternate interior angles Chance event Circumference Complementary angles Compound event Corresponding angles Data distribution decrease Equally likely Equilateral triangle Independent event Isosceles triangle Likely event Linear event Obtuse triangle Outcome Percent increase and Population Probability Process of chance Proportion Random sample Relative frequency Repeating decimal Scale drawing Scalene triangle</td>
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<td>Patterns exhibit relationships that can be extended, described, and generalized.</td>
<td>How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?</td>
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<td>What does it mean to estimate or analyze numerical quantities?</td>
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<td>What makes a tool and/or strategy appropriate for a given task?</td>
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<td>How can patterns be used to describe relationships in mathematical situations?</td>
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<td>Distinguish between rational and irrational numbers using their properties.</td>
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<td>Convert a terminating or repeating decimal into a rational number.</td>
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<td>Use rational approximations of irrational numbers to compare the size of irrational numbers.</td>
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<tr>
<td>ALG 1</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Patterns exhibit relationships that can be extended, described, and generalized.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What makes a tool and/or strategy appropriate for a given task? How can patterns be used to describe relationships in mathematical situations?</td>
<td>Rational and Irrational Numbers</td>
<td>Represent and/or use numbers in equivalent forms (integers, fractions, decimals, percent’s, square roots, exponents).</td>
<td>CC.2.1.HS.F.1 CC.2.1.HS.F.2</td>
<td>A1.1.1.1 A1.1.1.1.2 A1.1.1.3.1</td>
</tr>
</tbody>
</table>

Vocabulary:
- Relation
- Rotation
- Scatterplot
- Scientific notation
- Similarity
- Simultaneous linear equations
- Slope
- Sphere
- Square root
- Transformation
- Translation
- Two-way table
- y-intercept
- Additive Inverse
- Additive Property of Equality
- Algorithm
- Arithmetic Sequence
- Associative Property
- Asymptote
- Bar Graph
- Binomial
- Bivariate Data
- Boundary Line
- Bounded Region
- Circle Graph
- Coefficient
- Commutative Property
- Composite Number
- Compound Event
- Compound Inequality
- Degree (of polynomial)
- Dependent Events
- Domain (of Relation or Function)
- Equivalent
- Estimation Strategy
### PA Core Standards for Mathematics
#### 2.1 Numbers and Operations PreK-12

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| ALG 1 | Mathematical relationships among numbers can be represented, compared, and communicated.  
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.  
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. | How is mathematics used to quantify, compare, represent, and model numbers?  
How can mathematics support effective communication?  
How are relationships represented mathematically?  
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?  
What does it mean to estimate or analyze numerical quantities?  
What makes a tool and/or strategy appropriate for a given task? | Real Number System | Apply and extend the properties of exponents to solve problems with rational exponents.  
Apply number theory concepts to show relationships between real numbers in problem-solving settings.  
Use exponents, roots, and/or absolute values to solve problems. | CC.2.1.HS.F.1  
CC.2.1.HS.F.2  
CC.2.1.HS.F.3 | A1.1.1.1  
A1.1.2.1  
A1.1.2.2 | Exponential Equation  
Exponential Expression  
Exponential Function  
Exponential Growth/Decay  
Extrapolate  
Frequency  
Function  
Geometric Sequence  
Greatest Common Factor  
Half-Plane  
Independent Events  
Independent Variable  
Index  
Interpolate  
Interquartile Range  
Inverse (of a Relation)  
Inverse Operation  
Maximum Value (of a Graph)  
Measure of Central Tendencies  
Measure of Dispersion  
Minimum Value (of a Graph)  
Multiplicative Inverse  
Multiplicative Property of Equality  
Multiplicative Property of Zero  
Mutually Exclusive (rational v. irrational)  
Mutually Exclusive Event  
Negative Exponent  
Odds  
Outlier  
Point-Slope Form  
Polynomial Function |
| ALG 1 | Mathematical relationships among numbers can be represented, compared, and communicated.  
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.  
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. | How is mathematics used to quantify, compare, represent, and model numbers?  
How can mathematics support effective communication?  
How are relationships represented mathematically?  
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?  
What makes a tool and/or strategy appropriate for a given task? | Equations and Inequalities | Interpret solutions to linear equations and inequalities.  
Interpret solutions to linear systems of equations and inequalities. | CC.2.1.HS.F.3  
CC.2.1.HS.F.4  
CC.2.1.HS.F.5 | A1.1.2.1  
A1.1.2.2  
A1.1.2.3  
A1.1.2.4  
A1.1.2.5 | Exponential Equation  
Exponential Expression  
Exponential Function  
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## PA Core Standards for Mathematics
### 2.1 Numbers and Operations PreK-12

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<tr>
<td>ALG 2</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers?</td>
<td>Complex Number System</td>
<td>Represent and/or use imaginary numbers in equivalent forms.</td>
<td>CC.2.1.HS.F.6 CC.2.1.HS.F.7</td>
<td>A2.1.1.1 A2.1.1.2 A2.1.1.2.1 A2.1.1.2.2</td>
<td>Asymptote Binomial Combination Common Logarithm Complex Number System Compound Events Dependent/Independent Events</td>
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<td>Mathematical relationships can be represented as expressions, equations and inequalities in mathematical</td>
<td>How can mathematics support effective communication?</td>
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<td>Simplify/evaluate expressions involving imaginary numbers.</td>
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<tr>
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<td></td>
<td>How are relationships represented mathematically?</td>
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<td>Perform arithmetic operations and apply to complex numbers.</td>
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<td>Unbounded Region</td>
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<td>situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
<td>How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?</td>
<td>Polynomial and Rational Expressions</td>
<td>Perform arithmetic operations on polynomials. Understand the relationship between zeros and factors of polynomials. Rewrite rational expressions. Simplify/factor expressions involving polynomials.</td>
<td>CC.2.1.HS.F.1 CC.2.1.HS.D.1 CC.2.1.HS.D.2 CC.2.1.HS.D.3 CC.2.1.HS.D.4 CC.2.1.HS.D.5 CC.2.1.HS.D.6</td>
<td>A2.1.2.1.2 A2.1.3.1.2 A2.1.2.2.1 A2.1.2.2.2</td>
<td>Dilation Exponential Exponential Decay Exponential Function Exponential Growth Expression Geometric Sequence Imaginary Number Intervals Intercept Logarithm Natural Logarithm</td>
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<td>ALG 2</td>
<td>Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
<td>How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What makes a tool and/or strategy appropriate for a given task?</td>
<td>Equations and Inequalities</td>
<td>Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method.</td>
<td>CC.2.1.HS.F.1 CC.2.1.HS.D.1 CC.2.1.HS.D.2</td>
<td>A2.1.2.1.3 A2.1.2.1.4 A2.1.2.2.2 A2.1.3.1.1 A2.1.3.1.3 A2.1.3.1.4 A2.1.3.2.1 A2.1.3.2.2 A2.2.2.1.2</td>
<td>Negative Exponents Observational Study Outcomes Perfect Square Trinomial Permutation Polynomial Polynomial Identity Probability Quadratic Formula Quadratic Function Radical Functions Rational Functions Reflection Regression Models Root Functions Sample Survey Scatterplot Standard Deviation Statistical Experiment Transformation Translations Trinomial Unit Circle</td>
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<td>situations.</td>
<td>How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?</td>
<td>Determine how a change in one variable relates to a change in a second variable.</td>
<td>Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems.</td>
<td>A2.2.2.1.3</td>
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<td>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</td>
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