# Portrait of an Abington Heights 7th Grade Mathematician

By the end of 7th Grade, students will:

| The Number System | Ratios & Proportional Relationships | Expressions and Equations | Geometry | Statistics and Probability |
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| ☐ Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers, including in real-world contexts <br> ☐ Represent addition and subtraction of rational numbers on horizontal and vertical number lines <br> ☐ Demonstrate that the decimal form of a rational number terminates or eventually repeats | ☐ Analyze proportional relationships and use them to solve real-world and mathematical problems <br> ☐ Understand unit rates represented as a fraction with a denominator of 1 <br> ☐ Recognize and represent proportional relationships between quantities <br> ☐ Identify the constant of proportionality <br> ☐ Represent proportional relationships as equations <br> ☐ Use proportional relationships to solve multi-step ratio and percent problems | ☐ Use properties of operations to generate equivalent expressions <br> ☐ Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients <br> ☐ Solve real-world mathematical problems using numerical and algebraic expressions and equations <br> ☐ Solve multi-step problems using whole numbers, fractions, decimals, and percent <br> ☐ Use variables to represent quantities in simple equations and inequalities | ☐ Draw, construct, and describe geometric figures and the relationship between them <br> ☐ Solve problems involving scale drawings of geometric figures <br> ☐ Identify properties of triangles based on side and angle measures <br> ☐ Use and apply triangle inequality theorem <br> ☐ Describe two-dimensional figures that result from slicing three-dimensional figures <br> ☐ Identify and use properties of supplementary, complementary, and adjacent angles <br> ☐ Identify and use properties of angles formed when two parallel lines are cut by a transversal <br> ☐ Find area and circumference of a circle <br> ☐ Solve real-world and mathematical problems involving area, surface area, and volume | ☐ Use random sampling to draw inferences about a population <br> ☐ Draw informal comparative inferences about two populations <br> ☐ Investigate chance processes and develop, use, and evaluate probability models <br> ☐ Understand that probability is a number between 0 and 1, and can be represented as a fraction, decimal, or percent <br> ☐ Find probabilities of simple events |