

**Pennsylvania Department of Education
Grade 6 Mathematics Performance Level Descriptors**

<p>A sixth-grade student performing at the Below Basic Level demonstrates limited understanding of the concepts and ineffective application of the mathematical skills in the five Pennsylvania Mathematics Reporting Categories.</p>	<p>A sixth-grade student performing at the Basic Level solves simple or routine problems by applying skills and procedures in the five Pennsylvania Mathematics Reporting Categories.</p> <p>A student performing at the Basic Level:</p> <p>A. writes simplified forms of fractions and decimals in order; recognizes or selects common percents when presented as drawings, graphs, etc.; uses operations on fractions, decimals and whole numbers to solve basic problems.</p> <p>B. determines elapsed times in non-complex settings; classifies angles in basic categories (acute, right, etc.); uses a ruler to make measurements to the nearest $\frac{1}{16}$ inch or millimeter.</p> <p>C. identifies basic characteristics and properties of polygons including number of sides, number of angles and relative lengths of sides; uses angle and side relationships within triangles to solve simple problems; recognizes basic relationships (parallel, perpendicular and intersecting) between pairs of lines or segments in a plane.</p> <p>D. recognizes simple whole number patterns found in charts, tables, graphs or lists; identifies inverse relationships between addition and subtraction and between multiplication and division.</p> <p>E. identifies and draws conclusions from basic displays of data; recognizes the mean, median, mode or range calculated from groups of data; finds probability of simple events.</p>	<p>A sixth-grade student performing at the Proficient Level solves practical and real-world problems.</p> <p>A student performing at the Proficient Level:</p> <p>A. writes or recognizes percents, fractions and decimals in equivalent forms; uses divisibility tests and determines factors and multiples of numbers; solves multi-step problems with fractions, decimals and whole numbers; uses estimation to solve problems.</p> <p>B. determines and compares elapsed times in problem-solving situations; uses a protractor to measure angles; determines the perimeters of polygons.</p> <p>C. determines the diameter or radius of a circle when one or the other is given; uses basic properties of sides and angles to identify or classify polygons; labels drawings of two- and three-dimensional models illustrating relationships of lines or line segments; plots points on the coordinate plane.</p> <p>D. determines a rule to describe a pattern; uses inverse-operation strategies to solve one-step equations; recognizes expressions, equations or inequalities that model verbal mathematics situations.</p> <p>E. analyzes data displayed in a variety of forms; shows data in graphs, tables or line plots; determines mean, median, mode and range using data of up to two digits; determines combinations from sets of data.</p>	<p>A sixth-grade student performing at the Advanced Level solves complex problems and demonstrates in-depth understanding of the skills, concepts and procedures in the five Pennsylvania Mathematics Reporting Categories.</p> <p>A student performing at the Advanced Level:</p> <p>A. creates models to represent percents; analyzes and uses properties of equations; justifies solution techniques and solutions to complex problems involving rational numbers.</p> <p>B. solves problems involving measurements of geometric figures; describes, identifies and selects geometric figures based on their angle and linear measures.</p> <p>C. uses geometric properties to describe characteristics of polygons; draws or describes basic geometric figures on a coordinate plane; solves and justifies solutions to problems involving geometric properties of circles and polygons.</p> <p>D. creates a rule-based pattern in a visual display; uses mathematical language to describe a rule for a pattern; develops mathematical representations of complex problem settings.</p> <p>E. creates and defends appropriate representations for sets of data; evaluates data based on graphical displays and measures of central tendency; creates and describes strategies used to analyze simple events.</p>
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