Pre-Algebra Proficiency Level Descriptors

Minimal
Students performing at the minimal level are beginning to apply their pre-algebra mathematics skills. They compute, recognize, and represent relationships and operations with whole numbers, but have difficulty with other rational numbers. They are learning to represent relationships using coordinate graphs, tables, and models. Students are developing an understanding of properties of similar polygons. They have difficulty applying properties of proportionality to solve rate and unit conversion problems. Students recognize simple patterns and may be able to extend them. Students struggle to simplify or evaluate basic algebraic expressions. They have difficulty solving single-variable linear equations. They represent information and summarize data, and are beginning to formulate questions about data. Students attempt to calculate or estimate the probability of simple events. They struggle to find and apply formulas for surface area and volume.

Partial
Students performing at the partial level inconsistently apply their pre-algebra mathematics skills. They estimate, compute, and represent relationships and operations containing rational numbers with limited accuracy. They represent relationships using coordinate graphs, tables, and models but do not make connections between the various representations. Students recognize but inconsistently apply the properties of similar polygons. They apply properties of proportionality to solve rate, unit conversion, and some scale factor problems. Students recognize and extend simple patterns. They simplify and evaluate basic algebraic expressions. They solve single-variable linear equations or basic inequalities. They may formulate questions, represent information, and summarize data. Students calculate and estimate the probability of events and recognize differences between theoretical and experimental probability. They use formulas to find surface area and volume of 3-dimensional figures.

Proficiency Level Descriptor Workshop June 11-12, 2009

Pre-Algebra Proficiency Level Descriptors

Sufficient
Students performing at the sufficient level apply pre-algebra mathematics skills appropriately. They estimate, compute, represent, solve and analyze relationships and operations with rational numbers. They apply properties of proportionality to model and to solve rate, ratio, percent, unit conversion, and scale factor problems. They represent and connect relationships between coordinate graphs, tables, and models. Students recognize similar polygons and apply the properties of similar triangles to solve problems and explore slope. Students generalize simple patterns using algebraic expressions. They simplify and evaluate algebraic expressions. They solve single-variable linear equations and inequalities. They formulate questions, represent information, analyze results, and summarize pertinent data in histograms and box –and-whisker plots. Students calculate, estimate, and analyze the probability of events and identify differences between theoretical and experimental probability. They derive and use formulas to find surface area and volume of three dimensional figures.

Substantial
Students performing at the substantial level consistently apply pre-algebra mathematics skills appropriately. They fluently estimate, compute, represent, solve and analyze relationships and operations with rational numbers in real world situations. They accurately represent and connect relationships in coordinate graphs, tables, and models. Students readily recognize similar polygons and apply properties of similar polygons to solve problems. They consistently apply properties of proportionality to model and to solve rate, ratio, percent, slope, unit conversion, and scale factor problems. Students analyze and represent patterns using algebraic expressions. Students simplify and evaluate multi-step algebraic expressions. They solve multistep linear equations and inequalities using multiple mathematical properties. They formulate appropriate questions, represent information using a variety of methods, analyze results, and summarize pertinent data. Students calculate and estimate, the probability of compound events with high accuracy and analyze and identify differences between theoretical and experimental probability. They derive and use formulas to relate surface area and volume to real world applications.

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