

Grade 8 OCCT Mathematics Performance Level Descriptors (PLDs)

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically: use a wide range of strategies to solve problems; regularly use various types of reasoning effectively; consistently connect one area or idea of mathematics to another; and communicate mathematical ideas through a variety of representations.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will:

- Model, write, and solve multi-step linear equations with one variable using a variety of methods to solve application problems.
- Graph and interpret the solution to one- and two-step linear equations on a number line with one variable and on a coordinate plane with two variables.
- Predict the effect on the graph of a linear equation when the slope or y-intercept changes.
- Model, write, solve, and graph one- and two-step linear inequalities with one variable.
- Represent and interpret large numbers and numbers less than one in exponential and scientific notation.
- Use the rules of exponents, including integer exponents, to solve problems.
- Simplify numerical expressions with rational numbers, exponents, and parentheses using order of operations.
- Construct models, sketch, and classify solid figures such as rectangular solids, prisms, cones, cylinders, pyramids, and combined forms.
- Develop and apply the Pythagorean Theorem to find the length of line segments, the shortest distance between two points on a graph, and the length of an unknown side of a right triangle.
- Develop and apply formulas to find the surface area and volume of rectangular prisms, triangular prisms, and cylinders.
- Apply knowledge of ratio and proportion to solve relationships between similar geometric figures.
- Select, analyze and apply data displays in appropriate formats to draw conclusions and solve problems.
- Find the measures of central tendency (mean, median, mode, and range) of a set of data and understand why a specific measure provides the most useful information in a given context.

Limited Knowledge: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level are inconsistent in applying the general knowledge and mathematical process skills at the Proficient level necessary to solve problems effectively and reason mathematically.

Unsatisfactory: Students have not performed at least at the Limited Knowledge level. Students scoring at the Unsatisfactory level should be given comprehensive mathematics instruction.