

Walter Payton College Prep
Algebra 1 Placement Exam Topic List

The Algebra 1 placement exam is given to students who are currently enrolled in an 8th grade mathematics or Algebra 1 class. This placement exam evaluates whether a student should either be placed into Algebra 1 or Geometry in the fall of his/her freshman year at Payton. The exam covers the topics listed below. Please note that students are not allowed the use of any calculator during the entirety of the exam.

- Evaluate algebraic expressions following order of operations
- Calculate and interpret measures of center for data distributions (mean, median, mode)
- Simplify algebraic expressions
- Translate story problems into algebraic expressions and equations
- Interpret time series data and graphs
- Graph a line given an equation
- Graph a parabola given an equation
- Write an equation given a graph of a line or parabola
- Interpret and evaluate functions (including using function notation)
- Simplify numeric and algebraic expressions with rational exponents and roots
- Calculate distance between two points
- Solve linear and quadratic equations
- Solve linear inequalities
- Solve quadratic and absolute value inequalities graphically
- Solve absolute value equations
- Determine equations of lines that are parallel and perpendicular to a given line
- Determine equations of lines containing two given points
- Calculate the average rate of change between two points and understand that it is the slope of the line containing those two points
- Understand the slope-intercept, standard, and point-slope forms of lines and be able to convert equations of lines from one form to another
- Solve literal equations
- Express area and perimeter of squares, rectangles, triangles, and circles using algebraic expressions
- Factor quadratic expressions into the product of two binomial expressions
- Solve a system of linear equations and inequalities
- Unit conversion
- Interpret graphs of data distributions (histograms, box plots, stem plots)