

St. Francis High School Requirements for Waiving Algebra 1 and Geometry

All members of the Class of 2013 who wish to take Algebra 2 in Fall 2009, must first pass a combined Algebra I/Geometry challenge test.

A more detailed explanation of content and sample test questions can be found at www.stfrancis.org under the Prospective Students link.

- ❖ **Test Date:** March 9, 2009
- ❖ **Test Format:** Two parts:
 - Part I is short answer
 - Part II is multiple choice
- ❖ **Test Content:**
- ❖ **Algebra I content standards from California:**
 - Identify and use the arithmetic properties for real numbers
 - Understand and use operations such as taking the opposite, finding the reciprocal, taking a root, raising to a fractional power, and use the rules of exponents
 - Solve linear equations and inequalities, absolute value equations, quadratic equations by factoring, and multistep problems including word problems
 - Graph linear equations using x- and y- intercepts and slope-intercept form
 - Also sketch the region defined by a linear inequality
 - Derive linear equations by using the point-slope formula and manipulate to standard or slope-intercept form
 - Understand the concepts of parallel lines and perpendicular lines and how those slopes are related
 - Find the equation of line parallel or perpendicular to a given line through a given point
 - Solve a system of two linear equations algebraically and graphically
 - Also solve a system of two linear inequalities and sketch the solution
 - Apply basic factoring techniques (greatest common factor, difference of squares, perfect square binomials) to second and simple third degree polynomials
 - Simplify polynomials and rational expressions by adding, subtracting, multiplying, or dividing
 - Understand the concepts of a relation and a function and determine whether a relation is a function
 - Identify the domain and range of a function
 - Solve quadratic equations using the quadratic formula and completing the square
 - Graph quadratic functions and know that their roots are x-intercepts
 - Apply quadratic equations to solve rate problems, work problems, percent mixture problems, and force of gravity problems

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❖ Geometry content standards from California

- Use properties of complementary, supplementary, vertical, and exterior angles
 - Use the concept of corresponding parts of congruent and similar triangles
 - Know and are able to use the triangle inequality theorem
 - Use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles
 - Compute areas of polygons, including rectangles, scalene and equilateral triangles, rhombi, parallelograms, and trapezoids
 - Find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solids
 - Use the Pythagorean Theorem to determine distance and find missing lengths of sides of right triangles
 - Know the definitions of the basic trigonometric functions defined by the angles of a right triangle
 - Use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side
 - Know and are able to use angle and side relationships in problems with special right triangles, such as 30° - 60° - 90° triangles and 45° - 45° - 90° triangles
 - Solve problems regarding relationships among chords, secants, tangents, and inscribed angles
- ❖ These content standards are not being tested but it is assumed all students approved for placement in Algebra 2 will be competent in these standards not being tested by the time they enter St. Francis High School in the fall of 2009.
- Know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures
 - Compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres
 - Perform basic constructions with a straightedge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to a given line through a point off the line

Support Material: Calculators are allowed.

Passing Requirements: Based on their combined Algebra 1/Geometry challenge test scores, students will be placed in one of the following classes: Algebra 2, Geometry, or Algebra XL.