

## PREREQUISITES: ALGEBRA II

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Mathematics builds! To be successful in Algebra II, there are certain skills that you are expected to already have mastered. These prerequisites are summarized on this sheet. Although some of the topics listed here may be reviewed in Algebra II, you are expected to already have some familiarity with them, so that we can quickly move beyond the basics to higher-level discussions. Both ALGEBRA I and GEOMETRY are prerequisites to ALGEBRA II.

There will be a test over this prerequisite material on \_\_\_\_\_.

This prerequisite test will count as \_\_\_\_\_ of your Fall term grade.

"Sample Prerequisite Problems" (with solutions) are included with this sheet. The Prerequisite Test will consist of problems that are similar in format to the Sample Prerequisite Problems.

DON'T PANIC if you're rusty on (or just haven't ever seen!) some of the topics listed on this sheet: math courses at different schools sometimes cover different material. The first few days of class will be devoted to review, and filling in gaps. Also, the Math Department teachers are all available to help you. It's important, however, that you get this material at your fingertips right away, because we'll be drawing on these skills frequently.

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1. RENAMING EXPRESSIONS: base ten number system; arithmetic with decimals, fractions, signed numbers; set notation; basic vocabulary (e.g., the phrases "at least" and "at most," nonnegative, integers, consecutive); percents; unit conversion; scientific notation; factoring; radicals; exponent laws; polynomials
2. SOLVING EQUATIONS AND INEQUALITIES IN ONE VARIABLE: linear; quadratic equations that are factorable over the integers; absolute value (using distance concepts); compound inequalities; the zero factor law. You should also be able to write the equation of a circle with a specified center and radius. Be sure that you can distinguish between *exact* and *approximate* solutions.
3. GRAPHING SENTENCES IN TWO VARIABLES: familiarity with these "basic models":  $y = x$ ,  $y = x^2$ ,  $y = x^3$ ,  $y = |x|$ ,  $y = \sqrt{x}$ ,  $y = \frac{1}{x}$ , and  $y = k$ . Be able to graph circles (in standard form) and lines. Be able to handle compound sentences that use the mathematical words 'and' and 'or'.
4. BASIC GEOMETRY FORMULAS: perimeters of common figures, including the circumference of a circle. Also know the following formulas:  
AREA: rectangle, triangle, circle, trapezoid  
VOLUME: right cylinder (with familiar base)
5. FUNCTIONS: function notation; domain and range
6. LINES: recognize linear functions; write the equation of and graph any line, given sufficient information; know both  $y = mx + b$  and  $y - y_1 = m(x - x_1)$  forms; slope; parallel and perpendicular lines
7. CALCULATOR SKILLS: key in expressions using correct knowledge of order of operations; store and recall named variables; use stored values in calculations.  
Graph functions: set the window; trace along a curve; find maxima/minima of graphs; find  $x$ -intercepts using the built-in calculator feature; use the table feature; use the Zoom In, Zoom Out, and ZBox features.