

Course Expectations
High School Math Sequence
Mary Smyth, Math Instructor

Fall 2008

How do we do math at Watershed?

Like we do everything else—independently, uniquely, and with excitement, investment and humor!

We use an interactive computer tutorial called ALEKS. This system was created at the University of California, Irvine, with the support of a multi-million-dollar grant from the National Science Foundation.

ALEKS uses an artificial intelligence engine that assesses each student individually and continuously. Each new topic is chosen based on previous mastery of topics. Assessments are repeated at regular intervals, ensuring that students retain what they have learned before they go forward.

Each student will take an initial assessment and will be placed somewhere in the high school math sequence. How far can a student progress? There are no limits! (except in Calculus—little math humor, there.)

High school math competency includes, as its base level, the ability to handle basic computations with negative, positive and absolute values, fractions and decimals, powers of 10, and exponents.

The algebra sequence begins with understanding and solving for variables, writing mathematical expressions, placing points on the two-dimensional plane and working with straight lines as examples of simple functions.

The algebra sequence continues with using variables with exponent, root and power rules, polynomial expressions, increasingly complicated probabilities and graphing, and the behavior of more complex functions.

The most advanced topics in algebra include logarithms, matrices, series and sequences and conic sections.

Geometry is taught in a classroom setting during sophomore year. Trigonometry, pre-calculus, statistics and business math topics are all available on ALEKS, but once a student continues on to calculus we make additional arrangements for him/her.

Course Requirements

Since each student begins and ends at a different level, specific expectations vary for each

learner. In general, it takes about a year to complete a class (i.e. Algebra 1, Algebra 2) on ALEKS. A class is considered complete at Watershed if the student has demonstrated mastery of 75% of the material and has been exposed to an additional 15% in 'learning mode,' meaning those topics are not yet fully mastered.

You will be evaluated on your output as follows:

Time spent on ALEKS per week. We expect 4 hours of on-line time. We do not assume you will do any additional time as homework, but if you miss class time you should make it up.

Progress in mastering topics. Your instructor will review your pace and make suggestions. Depending on level of difficulty and the student's background, a student can learn 4-14 topics per hour spent on ALEKS.

Retention of material on repeated assessments. The program will check your ability to do recently-learned material after 10-20 new topics have been introduced. There will also be periodic checks on older material that you previously mastered. Algebra is a cumulative subject.

Keeping a math notebook. Notebooks will be provided and you will take notes on the topics you cover on-line.

Ability to hone your notes down to the essentials. You will take assessments when the program provides them using only a single notecard for reference. What goes on the notecard is up to you. This will sharpen your ability to weed through several pages of material and pick out the most important reminders, facts, definitions or formulas.

Classroom work ethic. You will work at your own pace and use your time productively. You are encouraged to help each other if you can, but not to make noise that distracts others. Asking for help is encouraged, but being patient is a virtue. You must remain in the math room and music/headphones are not allowed until we can determine what kind of progress you are capable of making.

Honors level work is defined as finishing more than one class in a year's time or making other extraordinary progress.