

# AlgebraX: Introduction to Algebra

Presented by School Yourself

## Quick Stats:

Course Length: 12 weeks (self-paced)

Estimated Effort: 4-6 hours/week

Prerequisites: None

## Description

We live in a world of numbers. You see them every day: on clocks, in the stock market, in sports, and all over the news. Algebra is all about figuring out the numbers you *don't* see. You might know how fast you can throw a ball, but can you use this number to determine how *far* you can throw it? You might keep track of stock prices, but how can you figure out how much money you've made (or lost) in the market? And you may already know how to tell time, but can you calculate at what times a clock's hour and minute hands are *exactly* aligned? With algebra, you can answer all of these questions, using the numbers you already know to solve for the *unknown*. Algebra is an essential tool for all of high school and college-level math, science, and engineering. So if you're starting out in one of these fields and you haven't yet mastered algebra, then this is the course for you!

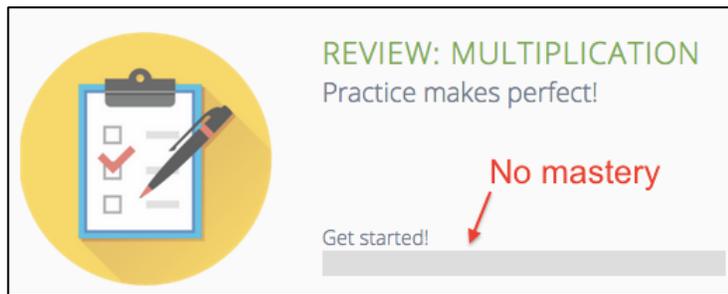
In this course, you'll be able to choose your own path within each lesson, and you can jump between lessons to quickly review earlier material. AlgebraX covers a standard curriculum in high school Algebra I, with significant CCSS (common core) alignment.

## Lessons, Reviews, and Grading

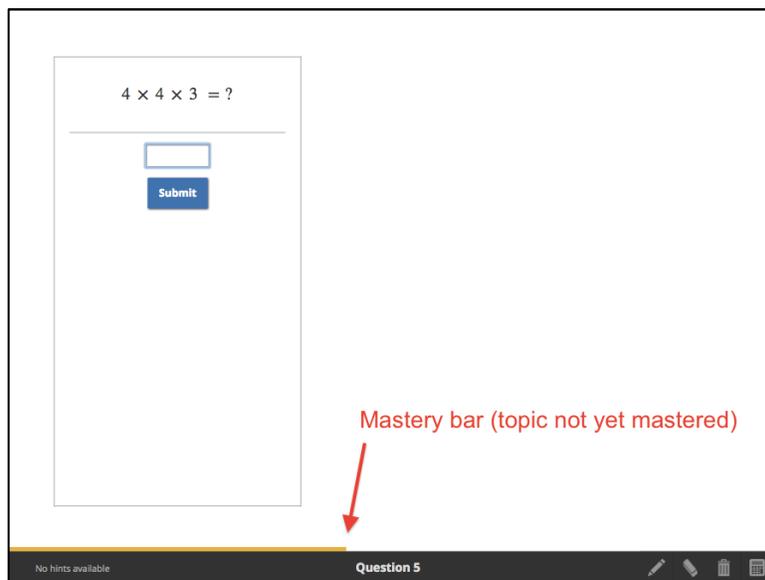
- Each topic consists of 1 lesson and 1 review.
- Lessons are optional. Reviews are **required**.
- Lessons are interactive, and you can choose your own path. We highly recommend checking them out!
- Each lesson typically takes 5-20 minutes to complete.
- Reviews are sequences of questions. As you correctly answer them, they may get a little tougher.
- There is **no penalty** for wrong answers, and you can try as many times as you wish.
- Once you've mastered a topic, you'll receive credit and you can move on.
- Reviews can be completed at any time during the course, and in any order. All reviews are due by the end of the course.
- To pass AlgebraX, you must complete at least **85%** of the reviews.

## Mastering reviews

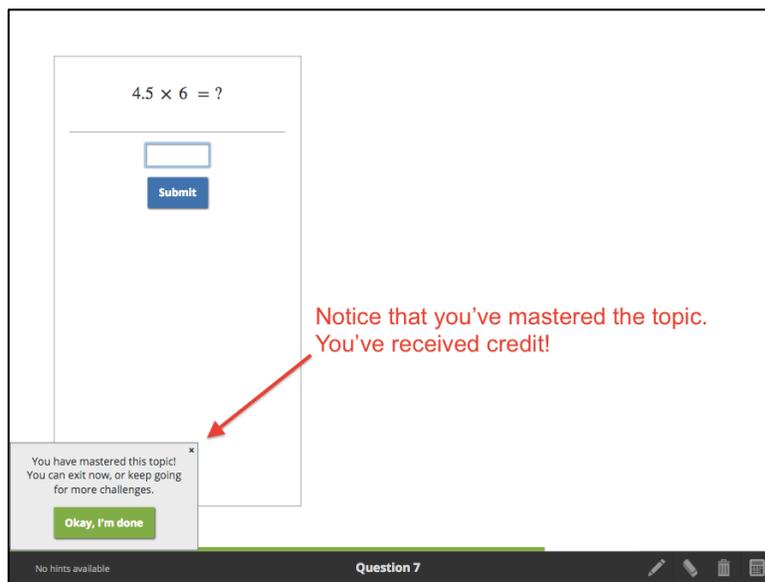
When you first start a review, your mastery bar will be empty:



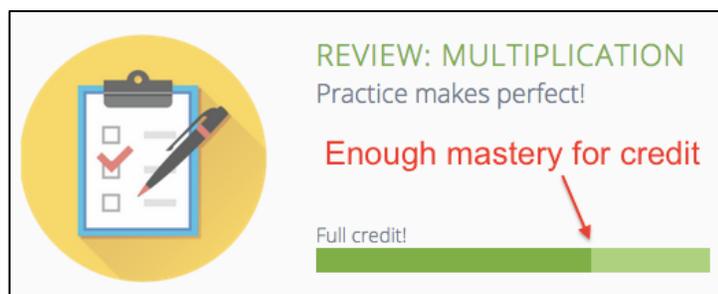
As you answer questions correctly, your mastery bar at the bottom of the screen will fill up:



Once you have enough mastery, you receive credit for that topic and review, and you can quit the review:



Your mastery bar will now indicate that you have achieved full credit for the review:



## Outline

As the course progresses, more topics will become available. We recommend completing topics using the weekly schedule below, but you may complete topics in any order and at any time during the course. The outline may change during the course; should changes occur, the syllabus will be updated and you will be notified.

<b>Week 1</b>	The number line
<b>Addition and subtraction</b>	Addition Subtraction Adding negatives Subtracting negatives Absolute value Distance on the number line
<b>Week 2</b>	Multiplication
<b>Multiplication and division</b>	Multiplying by 1 and 0 Division Dividing by 0 Order of operations Distributive law

	Multiplying negatives Dividing negatives [Brackets] and {braces} Finding the average
<b>Week 3 Fractions</b>	Introduction to fractions Multiplying fractions Comparing fractions Cancellation Adding fractions Mixed fractions Dividing fractions Reciprocals Distributive law for division
<b>Week 4 Powers and roots</b>	Squaring a number Raising to powers Square roots Square roots of non-squares Square roots of negatives Cube roots and beyond Order of operations (PEMDAS)
<b>Week 5 Rules for powers</b>	Multiplying powers Dividing powers Distributing powers Raising powers to powers Zeroth power Negative powers Roots and powers Fractional powers Splitting up roots
<b>Week 6 Solving equations</b>	Solving for unknowns Evaluating algebraic expressions Solving by adding Solving by multiplying Cross multiplication Coefficients Combining like terms Multi-step equations Multivariable equations Unsolvable equations
<b>Week 7 Inequalities and simultaneous equations</b>	Inequalities Solving inequalities Negative inequalities Simultaneous equations Unsolvable pairs of equations
<b>Week 8 Coordinates</b>	The coordinate plane Quadrants Finding a midpoint
<b>Week 9 Slope</b>	Slope (an introduction) Slope formula Negative slopes Horizontal and vertical slopes Finding the slope of a line Slopes for parallel lines

	Slopes for perpendicular lines
<b>Week 10</b>	Graphing an equation
<b>Lines</b>	Slope-intercept formula
	From coordinates to equations
	Point-slope formula
	Reading a graph
	Finding intercepts
	Solving for intersections
	A graph for absolute value
	Solving inequalities with 2 variables
	Graphing inequalities with 2 variables
<b>Week 11</b>	What are polynomials?
<b>Polynomials</b>	Adding polynomials
	Multiplying monomials
	Multiplying binomials
	Multiplying polynomials
	Difference of squares
<b>Week 12</b>	Quadratic equations
<b>Quadratics</b>	Graphing a parabola
	Graphing quadratics
	Factoring quadratics
	The quadratic formula
	Discriminants and roots