

ALGEBRA 2 WITH KHAN ACADEMY

ABOUT

Khan Academy is a free resource available to students around the world, operating as a non-profit. The site breaks down educational topics in math, science, reading and writing, humanities, test preparation, life skills, and much more. Khan Academy offers a structured, comprehensive program that can **help students in various stages of their math education**; if you need a recap of Algebra 2, need to get ready for Algebra 2, or strengthen your Algebra 2 skills for the **SAT or ACT** (and want to achieve it in 8 weeks), keep reading.

PREPARING FOR THE SAT OR ACT?

Visit www.edisonprep.com for
Parent Info Sessions
Free Mock Tests
SAT & ACT Group Courses
Private Tutoring
and much more!



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Prep

BEST PRACTICES

BEFORE YOU BEGIN:

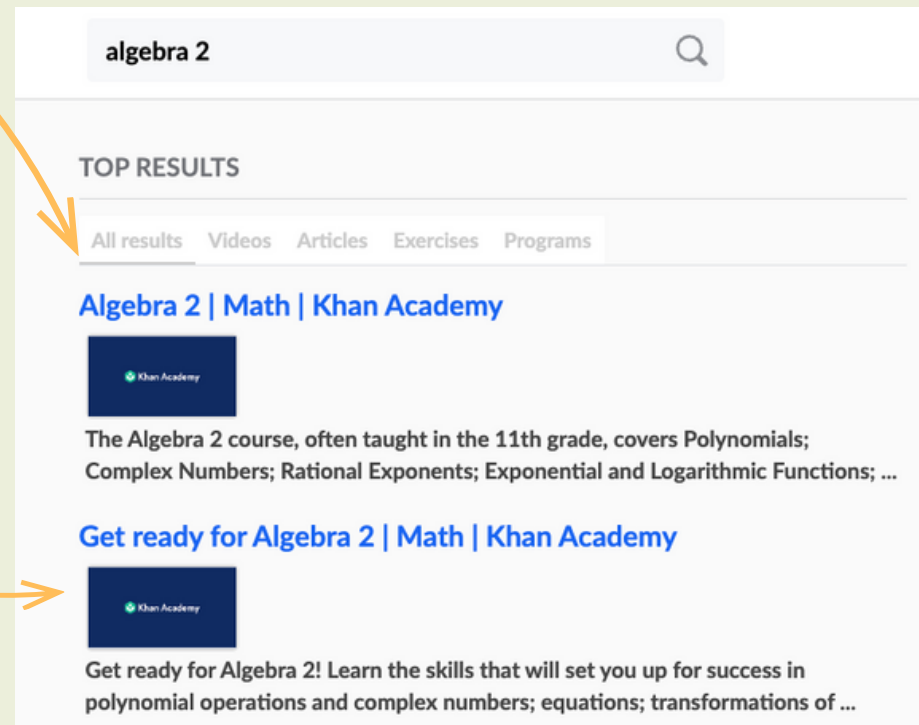
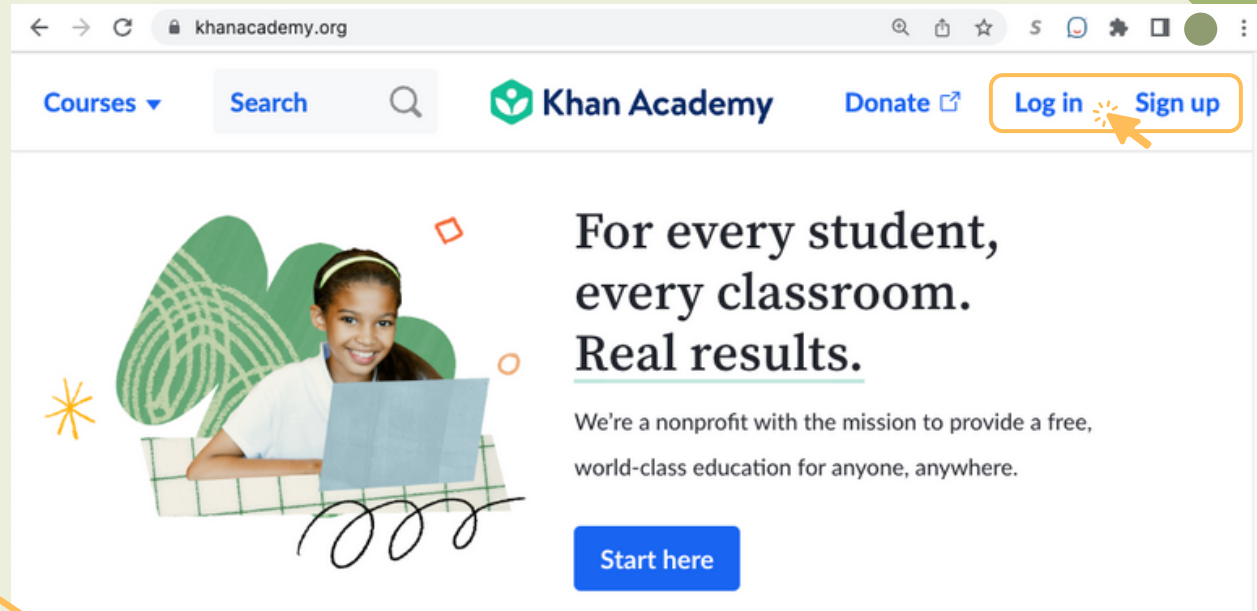
- **DESIGNATE A WORK SPACE** with no distractions (no cell phones!)
- PRINT OUT THIS GUIDE to use as a checklist to keep track of progress
- **CREATE A CONSISTENT WORK ROUTINE:** same days each week, same time each day, same duration
- **HOLD YOURSELF ACCOUNTABLE:** do work with a peer, ask your parent or older family member to do work at the same time
- **FOSTER A GROWTH MINDSET:** retry practice problems as many times as you need; rewatch videos; seek out supplemental resources; reflect on your errors; for any challenging topics, determine “What did I miss?” and “What do I do now?”
- HAVE FUN! Have an enjoyable summer with a healthy balance of academic work and relaxation.

*A list of additional resources can be found on **page 9!***

LET'S GET STARTED!

WEEK 0: SETTING UP

1. Go to **khanacademy.org**.
 2. Log in, or create an account if you don't already have one.
 3. In the search bar, search for '**algebra 2**'.
- **If you want to dive right in**, click [Algebra 2](#) | [Math](#) | [Khan Academy](#).
 - **If you struggled in Alg 1 or geometry**, click [Get ready for Algebra 2](#) | [Math](#) | [Khan Academy](#).
 - Complete the **Course Challenge** at the bottom of the page to identify gaps in knowledge *before* starting the Algebra 2 course



BEST PRACTICES

FOR EACH UNIT...

- Click the **Unit title**.
- Read **About this unit** for a summary on upcoming topics.
- Click the title of each section.
 - Watch videos and complete **ALL** practice problems.
 - **Retry** practice sets, read answer explanations, and watch any suggested videos.
 - Achieve **at least an 80%** on each quiz or unit test before moving on!

Khan Academy

Math
Algebra 2

Not feeling ready for this? Check out [Get ready for Algebra 2](#).

11,300
Mastery points available in course

Up next for you:
Unit 1: Polynomial arithmetic 0/1200 Mastery points

Intro to polynomials	Multiplying monomials by polyn...
Average rate of change of polyn...	Multiplying binomials by polyno...
Adding and subtracting polynom...	Special products of polynomials

[Get started](#)

Algebra 2
Unit: Polynomial arithmetic

CC Math: HSA.APR.A.1, HSA.APR.A, HSA.SSE.A.2, HSF.IF.B.6

Not feeling ready for this? Check out [Get ready for Algebra 2](#).

About this unit

We'll explore the connection between polynomials and the integers, through adding, subtracting, and multiplying polynomials. This prepares us for factoring and dividing polynomials, and paves the way for complex modeling in fields like physics, engineering, and finance.

Intro to polynomials

Learn

- ▶ Polynomials intro
- ▶ The parts of polynomial expressions

Algebra 2

COURSE: ALGEBRA 2 > UNIT 1
Lesson 1: Intro to polynomials

- ▶ Polynomials intro
- Polynomials intro
Not started
- ▶ The parts of polynomial expressions...

[Math](#) > [Algebra 2](#) > [Polynomial arithmetic](#) > [Intro to polynomials](#)

Polynomials intro

CCSS.Math: HSA.SSE.A.1a [Google Classroom](#)

Polynomial
Poly intro

Khan Academy

[About](#) [Transcript](#)

Polynomials are sums of terms of the form $k \cdot x^n$, where k is any number and n is a positive integer. For example,

[Up next: exercise](#)

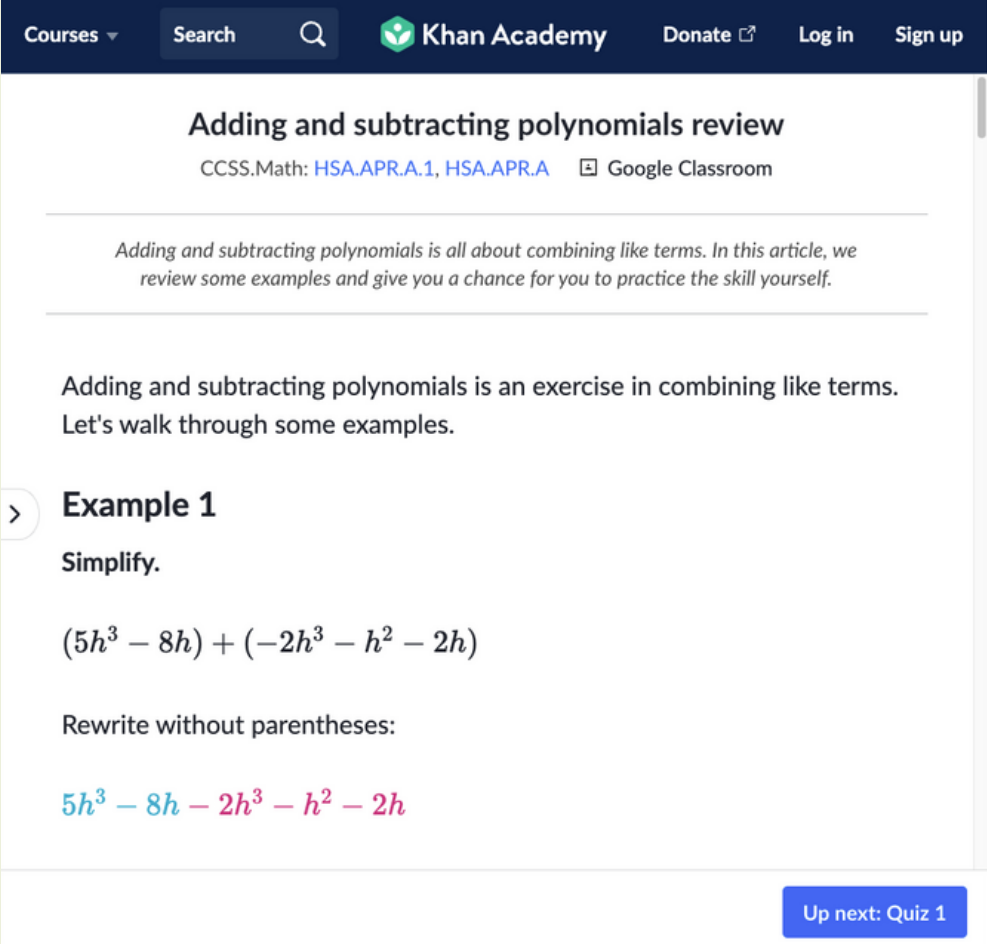
BEST PRACTICES

FOR EACH UNIT...

- Each unit should be split over **multiple days**—don't cram!
- An approximate time for each unit is provided. However, timing is **HIGHLY** dependent on previous knowledge, whether you re-watch videos, re-try practice problems, and review notes. You are by no means limited to this length of time—in fact, **take as much time as you need for each unit**. Learning should not be rushed!

Most sections include a **lesson review** and/or frequently asked questions, as well as additional practice problems.

Review these carefully.



The screenshot shows the Khan Academy interface. At the top, there is a navigation bar with 'Courses', 'Search', 'Khan Academy' logo, 'Donate', 'Log in', and 'Sign up'. The main content area is titled 'Adding and subtracting polynomials review' with subtext 'CCSS.Math: HSA.APR.A.1, HSA.APR.A' and a 'Google Classroom' link. A paragraph of text reads: 'Adding and subtracting polynomials is all about combining like terms. In this article, we review some examples and give you a chance for you to practice the skill yourself.' Below this, another paragraph states: 'Adding and subtracting polynomials is an exercise in combining like terms. Let's walk through some examples.' An 'Example 1' section begins with 'Simplify.' followed by the equation $(5h^3 - 8h) + (-2h^3 - h^2 - 2h)$. Below the equation, it says 'Rewrite without parentheses:' and shows the result $5h^3 - 8h - 2h^3 - h^2 - 2h$. At the bottom right, there is a blue button that says 'Up next: Quiz 1'.



WEEKLY CALENDAR

WEEK 1:

ALL ABOUT NUMBERS

UNIT 1: POLYNOMIAL ARITHMETIC

(4.5 hr)

- Intro to polynomials
- Average rate of change of polynomials
- Adding and subtracting polynomials
- Quiz 1**
- Multiplying monomials by polynomials
- Quiz 2**
- Multiplying binomials by polynomials
- Special products of polynomials
- Quiz 3**
- UNIT TEST**

UNIT 2: COMPLEX NUMBERS

(4 hr)

- The imaginary unit i
- Complex numbers introduction
- The complex plane
- Quiz 1**
- Adding + subtracting complex numbers
- Multiplying complex numbers
- Quadratic equations with complex sol's
- Quiz 2**
- UNIT TEST**

WEEK 2:

FACTORING FUN

UNIT 3: POLYNOMIAL FACTORIZATION

(5 hr)

- Factoring monomials
- Greatest common factor
- Taking common factors
- Factoring higher degree polynomials
- Quiz 1**
- Factoring using structure
- Quiz 2**
- Polynomial identities
- Geometric series
- Quiz 3**
- UNIT TEST**

WHICH TOPICS POSED CHALLENGES?

WEEK 3:

DIVIDE & POLYNOMIALIZE

UNIT 4: POLYNOMIAL DIVISION

(3.5 hr)

- Dividing polynomials by x
- Dividing quadratics by linear factors
- Quiz 1**
- Dividing polynomials by linear factors
- Polynomial Remainder Theorem
- Quiz 2**
- UNIT TEST**

WHICH SKILLS NEED MORE PRACTICE?

WEEKLY CALENDAR

WEEK 4: GRAPH IT OUT

UNIT 5: POLYNOMIAL GRAPHS (2.5 hr)

- Zeros of polynomials
- Positive + negative intervals of polynomials
- End of behavior of polynomials
- Putting in all together
- UNIT TEST**

UNIT 6: RATIONAL EXPONENTS & RADICALS (3.5 hr)

- Rational exponents
- Properties of exponents
- Quiz 1**
- Evaluating exponents & radicals
- Equivalent forms of exponential expressions
- Solving exponential equations
- Quiz 2**
- UNIT TEST**

WEEK 5: LOGGING IN LOGARITHMS

UNIT 7: EXPONENTIAL MODELS (2 hr)

- Interpreting the rate of change of exponential models
- Constructing exponential models according to rate of change
- Advanced interpretation of exponential models
- UNIT TEST**

UNIT 8: LOGARITHMS (4.5 hr)

- Introduction to logarithms
- The constant e and the natural log
- Properties of logarithms
- Quiz 1**
- The change of base formula for logs
- Solving exponential equations with logs
- Solving exponential models
- Quiz 2**
- UNIT TEST**

WHICH TOPICS POSED CHALLENGES?

WHICH SKILLS NEED MORE PRACTICE?

WEEKLY CALENDAR

WEEK 6: EQUATE RATE

UNIT 9: TRANSFORMATIONS OF FUNCTIONS (5 hr)

- Shifting functions
- Reflecting functions
- Symmetry of functions
- Quiz 1**
- Scaling functions
- Putting it all together
- Quiz 2**
- Graphs of square and cube root functions
- Graphs of exponential functions
- Graphs of logarithmic functions
- Quiz 3**
- UNIT TEST**

UNIT 10: EQUATIONS (4.5 hr)

- Rational equations
- Square-root equations
- Extraneous solutions
- Cube-root equations
- Quiz 1**
- Quadratic systems
- Solving equations by graphing
- Quiz 2**
- UNIT TEST**

WEEK 7: TRIG 'N' TRIANGLES

UNIT 11: TRIGONOMETRY (6.5 hr)

- Unit circle introduction
- Radians
- The Pythagorean identity
- Trigonometric values of special angles
- Quiz 1**
- Graphs of $\sin(x)$, $\cos(x)$, and $\tan(x)$
- Amplitude, midline and period
- Transforming sinusoidal graphs
- Quiz 2**
- Graphing sinusoidal functions
- Sinusoidal models
- Quiz 3**
- UNIT TEST**

WHICH SKILLS NEED MORE PRACTICE?

WHICH TOPICS POSED CHALLENGES?



WEEKLY CALENDAR

WEEK 8:

MODEL & REFLECT

UNIT 12: MODELING

(4 hr)

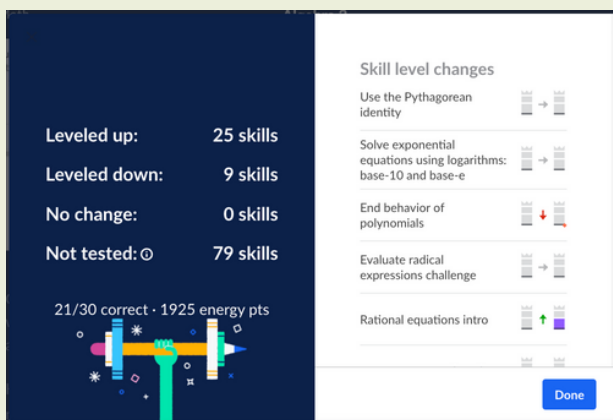
- Modeling with function combination
- Interpreting features of functions
- Manipulating formulas
- Quiz 1**
- Modeling with two variables
- Modeling with multiple variables
- Quiz 2**
- UNIT TEST**

WHICH SKILLS NEED MORE PRACTICE?

WRAP IT UP!

Complete the Course challenge at the end of the course.

(45 min)



Algebra 2

Course challenge

Test your knowledge of the skills in this course. Have a test coming up? The Course challenge can help you understand what you need to review.

[Start Course challenge](#)

Course challenge: 70% 2 minutes ago

Nice work! You're on the right track. Try again to see if you can improve your score.

[Take Course challenge again](#)

Use your results to **improve in any skills that could use improvement**: re-try practice problems, watch videos, and **use the additional resources!**

WRAPPING UP

REFLECT

In your notebook, answer the following questions:

- At what point did you struggle? What would you do differently the next time you're faced with a similar problem?
- What resources did you use to help you find answers?
- Could you teach what you have learned to someone else? Why or why not?
- Did anything get in the way of you making progress?
- What surprised you about what you learned?
- What questions do you still have?

ADDITIONAL RESOURCES

Need help with a specific topic, skill, or type of problem?

Check out these free resources:

- ★ [mathisfun.com](https://www.mathisfun.com)
- ★ [ixl.com/math/algebra-2](https://www.ixl.com/math/algebra-2)
- ★ [mathplanet.com/education/algebra-2](https://www.mathplanet.com/education/algebra-2)

(Edison Prep is not sponsored by Math Is Fun, IXL, or Mathplanet—we just think they're great.)

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EDISON PREP'S SAT/ACT TEST PREPARATION

WHO WE ARE:

Brian and Silvia Eufinger have tutored **20,000 students for 66,000+ hours**. They teach all group classes and authored our annually-updated SAT & ACT books.

Our small team of private tutors has **over 100,000 hours** of teaching experience—the most experienced group in Atlanta.

Our company is purposely small to maintain high quality and **consistently impressive results**.

CONTACT US TO LEARN MORE:

-  404-333-8573
-  edison@edisonprep.com
-  www.edisonprep.com
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We have **group classes** and bootcamps scheduled through July 2024, expanded **private tutoring** capacity, and **flexible programs** throughout the year—including summer break!



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7-9PM EST on Zoom
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