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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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!***

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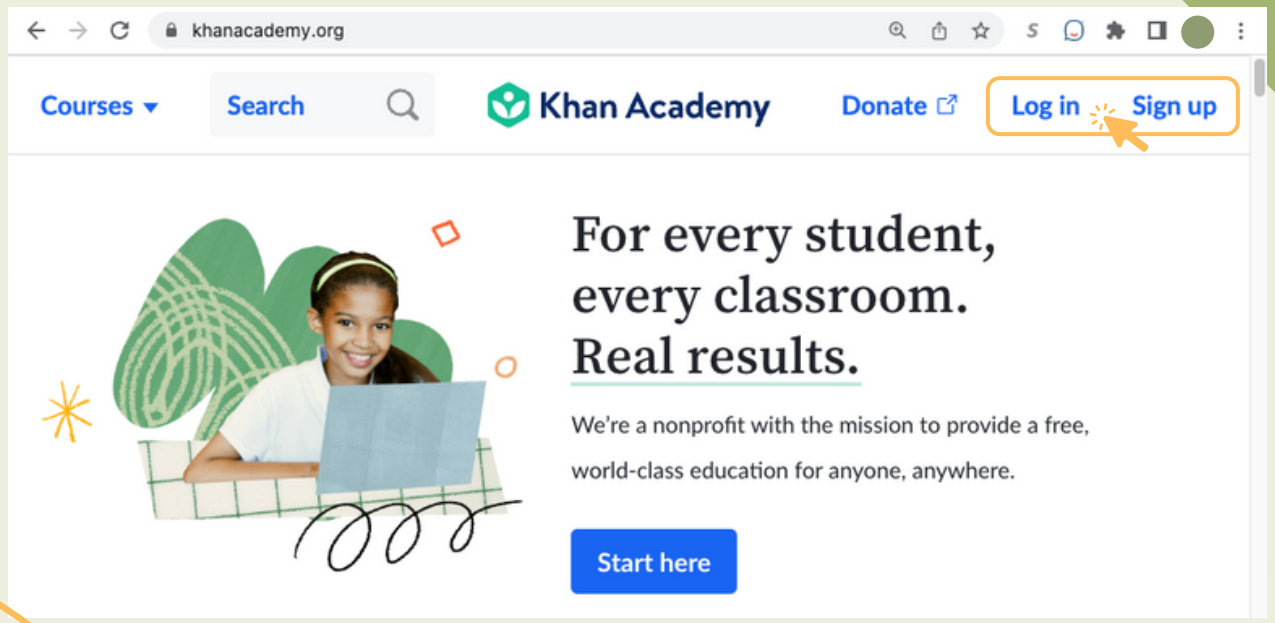
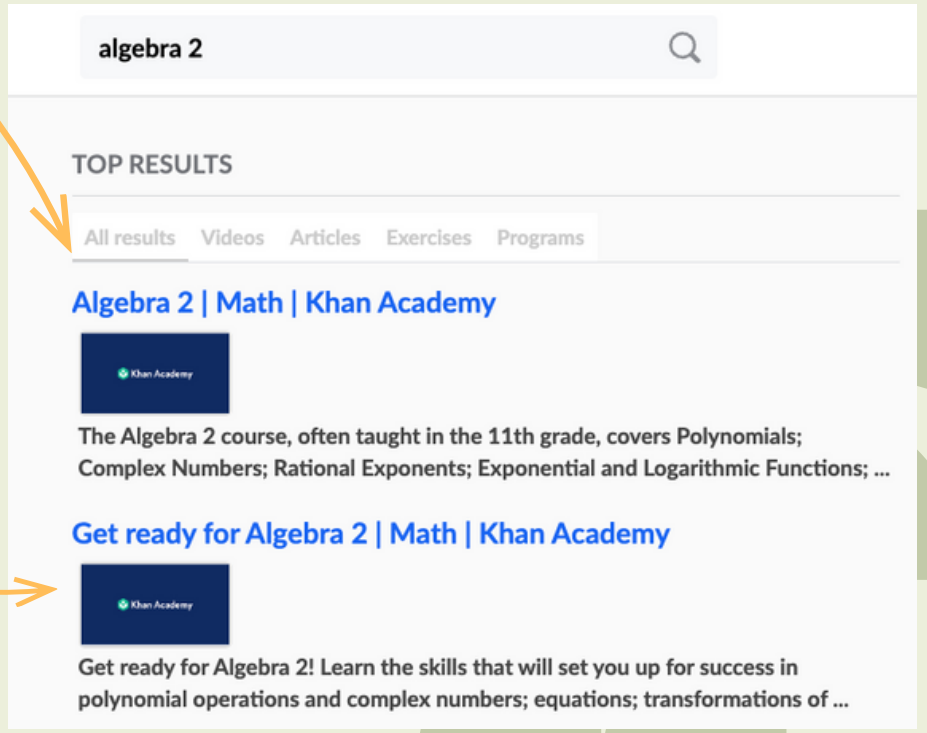
LET'S GET STARTED!

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

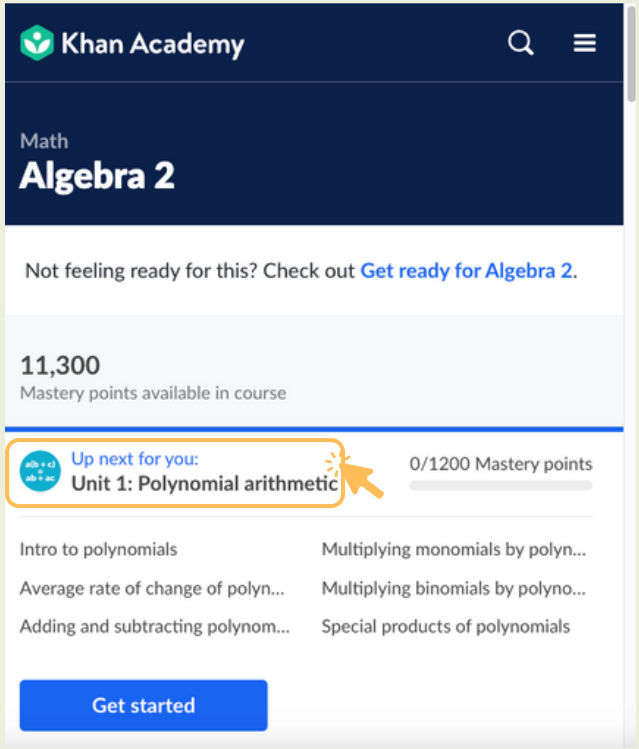


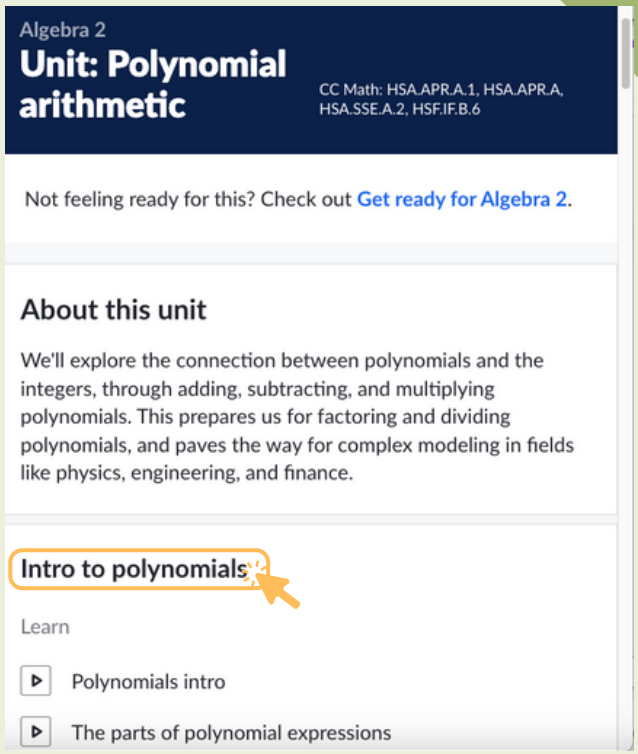


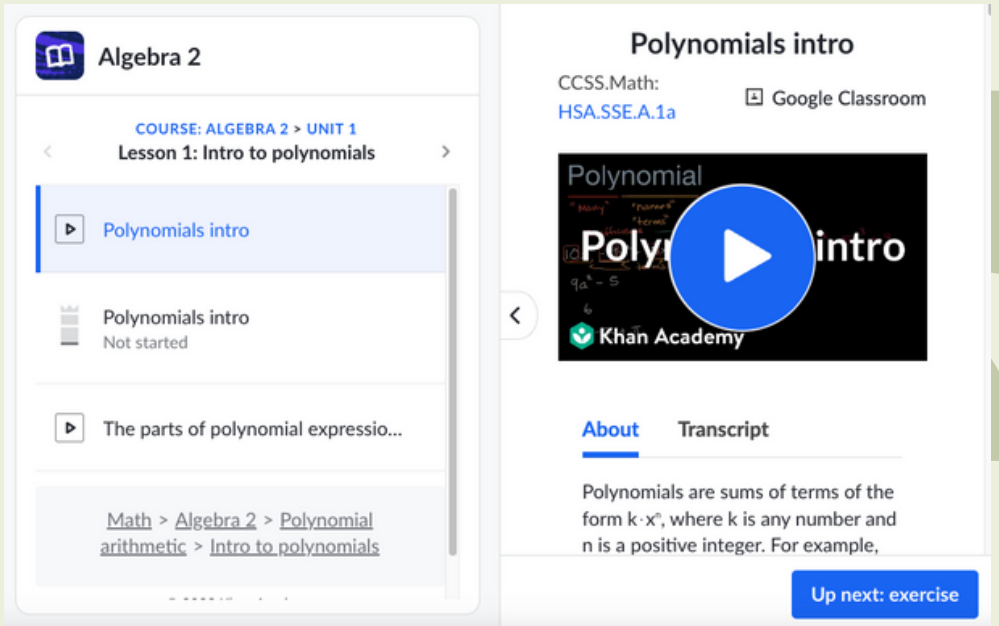
BEST PRACTICES

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!







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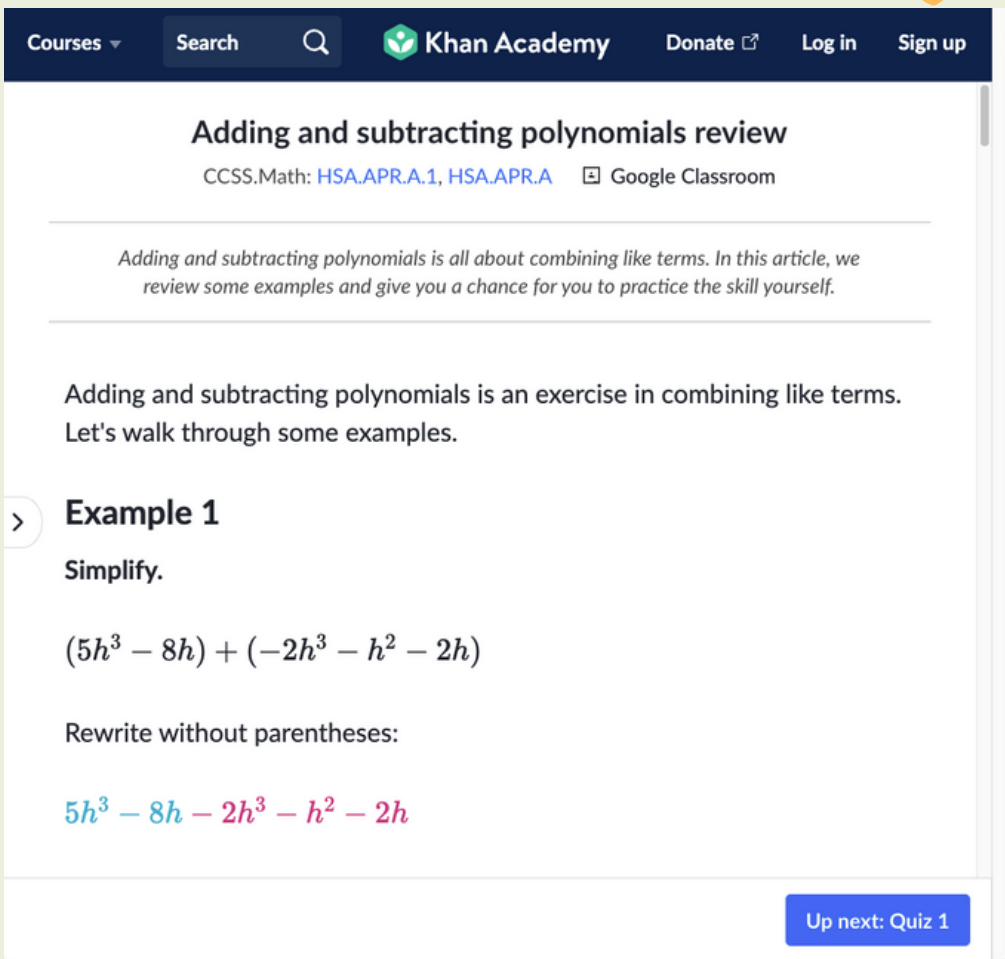
BEST PRACTICES

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*.**



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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?

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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 TOPICS POSED CHALLENGES?

WHICH SKILLS NEED MORE PRACTICE?

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WEEKLY CALENDAR

WEEK 8:
MODEL & REFLECT

UNIT 12: MODELING

(4 hr)

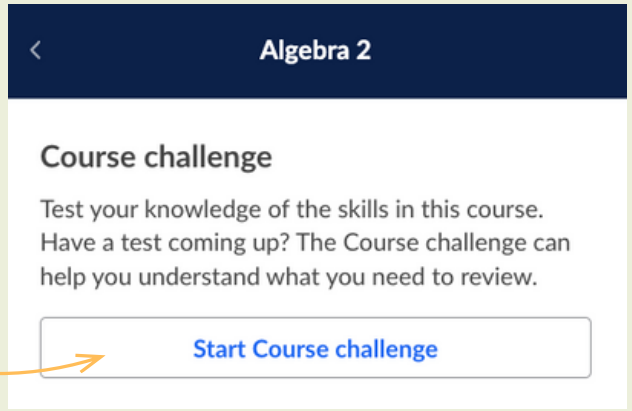
- ☐ Modeling with function combination
- ☐ Interpreting features of functions
- ☐ Manipulating formulas
- ☐ ***Quiz 1***
- ☐ Modeling with two variables
- ☐ Modeling with multiple variables
- ☐ ***Quiz 2***
- ☐ ***UNIT TEST***

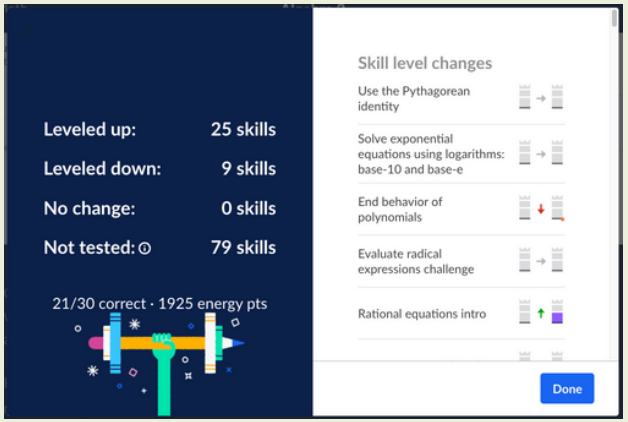
WHICH SKILLS NEED MORE PRACTICE?

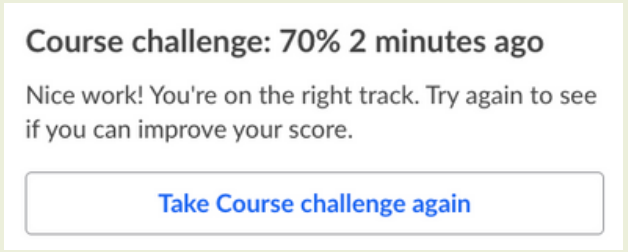
WRAP IT UP!

Complete the **Course challenge** at the end of the course.

(45 min)







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

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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
- ★ ixl.com/math/algebra-2
- ★ 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:

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WHAT WE OFFER:

INNOVATIVE TEST PREP MATERIALS

Our **SAT & ACT Bulbs, Calculator Video Channel,** and more are complimentary for all students!

IN-PERSON & VIRTUAL PRIVATE & GROUP CLASSES

We have **group classes** and bootcamps scheduled through July 2024, expanded **private tutoring** capacity, and **flexible programs** throughout the year—including summer break!

FREE MOCK TESTS

SAT & ACT mock tests every weekend: in-person and virtual.
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PARENT INFO SESSIONS

7-9PM EST on Zoom
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