

Teaching and Learning

Family Roadmap to Math Success in Louisiana

Algebra I Overview

In Algebra I, students extend their understanding of equations, expressions, and functions to analyze relationships between quantities. They explore linear, quadratic, and exponential models and use tables, graphs, and equations to represent and compare them. Students build fluency in solving equations and inequalities, interpreting the meaning of solutions in real-world contexts. These skills form the foundation for all future high school mathematics.

By the end of Algebra 1, your student will be able to:

- Interpret and create algebraic expressions, equations, and inequalities.
- Solve linear equations, linear inequalities, and systems of equations.
- Interpret, create, and analyze linear, quadratic, and exponential functions.
- Use tables, graphs, and equations to model real-world situations.
- Understand and apply the structure of expressions to rewrite them in different forms.
- Analyze data displays and interpret categorical and quantitative data.
- Apply mathematical reasoning to justify steps, explain solutions, and critique the reasoning of others.

How can families help at home?

- Ask your student to explain the steps they used to solve an equation or graph a function.
- Have your student calculate the total cost, the percent increase/decrease, or compare phone plans.
- Look at real-life graphs and/or statistics (weather apps, sports stats, gas price trends) and ask what they notice.
- Encourage your student to describe patterns they see in tables and/or graphs.
- Use household scenarios (budgeting, comparing products, saving money) to talk about linear or exponential change.

Building reasoning and problem-solving through word problems

Working through word problems helps students develop both their mathematical vocabulary and their reasoning abilities. Word problems support critical thinking, improve problem-solving strategies, and help

students apply math concepts to real-world situations. Here are example word problems that Algebra 1 students might work on:

- An online gaming platform charges a \$15 monthly membership fee plus \$5 for each downloadable content (DLC) pack you purchase. Write and interpret an expression for the monthly cost.
- The value of a car decreases exponentially. Given a table of values, identify the function type and write a model.
- Two part-time jobs pay differently. Job A pays \$12 per hour, while Job B pays \$9 per hour plus a one-time \$10 sign-on bonus. After how many hours of work would the total pay be the same?
- A quadratic function models the height of a ball thrown in the air. Use the graph to identify the maximum height and when it occurs.
- A company tracks the number of followers on its social media page over time. Determine whether the growth is linear or exponential and justify your answer.

Family Engagement Tips

- Talk positively about math and encourage your child to maintain a growth mindset.
- Encourage your child to share/show you a different way to solve a math problem than you are familiar with and explain the reasoning for their approach.
- Celebrate mistakes as learning opportunities. Remind your child that making mistakes is part of learning and praise their efforts.
- Stay in touch with your child's teacher to learn what your child is learning and how to support it at home.
- Create a learning space for your child with supplies such as paper, pencils, rulers, calculators, and age-appropriate math manipulatives.

How does Algebra 1 build on grade 8 Math?

Algebra I deepens students' understanding of linear equations, proportional relationships, and functions from Grade 8. Students extend their knowledge of equations to include systems, quadratic functions, and exponential functions. They apply and expand their understanding of transformations, graphing, and mathematical modeling to solve more complex problems.

Math Conversations

Communicate with your child about math using open-ended questions:

- What strategy did you use to solve the problem?
- Why do you think your answer makes sense?
- If your answer was wrong, how could you check your work?
- How did you solve that problem?

Online Resources

- [Family Math Resources](#)
- [Family Literacy Resources](#)
- [School System Parent and Family Engagement Resources](#)