# **Algebra 1 Unit Test Guide**

## Structures of Expressions Unit Test

GeoGebra Math Practice is a helpful tool to use with students making corrections or learning new concepts.

**GeoGebra Math Practice Tool:** Math Practice is a tool for mastering algebraic notation. It supports students in their step-by-step math work, let's them explore different solution paths, and helps build confidence, fluency, and understanding.[*Teacher Guide*](https://help.geogebra.org/hc/en-us/articles/15294353125533-Teachers-Using-GeoGebra-Math-Practice-in-class) *|* [*Student Guide*](https://help.geogebra.org/hc/en-us/articles/15294377044381-Students-Learn-with-GeoGebra-Math-Practice) *|* [*Video Demo*](https://youtu.be/Injz3kiRx8g)

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| **Item** | **Lesson Coverage** | **Objective** | **Mathematical Practice Standard** | **Assessment Item** |
| 1 | Lesson 2: Parts of Algebraic Expressions | In this section, you will interpret the parts of an algebraic expression in terms of their context. | Model with mathematics. | *Use the following example to answer the question.*  Antoine goes to the mall to buy new shoes and jerseys. He pays a set rate per pair of shoes and a set rate per jersey, and he pays more per jersey than he pays per pair of shoes. His total spending can be modeled by the equation .  Which of the statements correctly interprets a part of the expression?  Statement #1: Antoine spends $35.00 per pair of shoes.  Statement #2: Antoine spends $55.00 per pair of shoes.  Statement #3: Antoine spends $35.00 in total for shoes.  Statement #\_\_\_ correctly interprets a part of the expression.  **Answer: 1** |
| 2 | Lesson 2: Parts of Algebraic Expressions | In this section, you will use context and grouping symbols to interpret parts of an expressions as a single entity. | Model with mathematics. | Consider the expression . What is the simplified numerator?  **Answer: 76** |
| 3 | Lesson 3: The Commutative Property | In this section, you will use the Commutative Property to rewrite algebraic expressions. | Look for and make use of structure. | Use the Commutative Property of Multiplication to rewrite the algebraic expression: .  **Answer:** |
| 4 | Lesson 3: The Commutative Property | In this section, you will use the Commutative Property to prove algebraic expressions are equivalent. | Use the structure of an expression to identify ways to rewrite it. | Which expression correctly demonstrates the Commutative Property of Multiplication?  **Answer:** |
| 5 | Lesson 4: The Associative Property | In this section, you will use the Associative Property to rewrite algebraic expressions. | Use the structure of an expression to identify ways to rewrite it. | Write an equivalent expression to  using the Associative Property of Multiplication.  **Answer:** |
| 6 | Lesson 4: The Associative Property | In this section, you will use the Associative Property to prove algebraic expressions are equivalent. | Use the structure of an expression to identify ways to rewrite it. | Which expression is equivalent to ?  **Answer:** |
| 7 | Lesson 5: The Distributive Property | In this section, you will use the Distributive Property to rewrite algebraic expressions. | Use the structure of an expression to identify ways to rewrite it. | According to the Distributive Property, which expression is equivalent to ?  **Answer:** |
| 8 | Lesson 5: The Distributive Property | In this section, you will use the Distributive Property to prove algebraic expressions to be equivalent. | Look for and make use of structure. | Which of the following simplifies to the same expression as ?  **Answer:** |
| 9 | Lesson 6: Adding & Subtracting Polynomials | In this section, you will add polynomial expressions. | Make sense of problems and persevere in solving them. | Add the polynomial expressions  and .  **Answer:** |
| 10 | Lesson 6: Adding & Subtracting Polynomials | In this section, you will show that polynomials form a closed system under addition and subtraction. | Construct viable arguments and critique the reasoning of others. | Which of the following correctly simplifies ?  **Answer:** |
| 11 | Lesson 7: Multiplying Polynomials | In this section, you will multiply polynomial expressions. | Make sense of problems and persevere in solving them. | Multiply the polynomials  **Answer: 6; 10; -4** |
| 12 | Lesson 7: Multiplying Polynomials | In this section, you will show how multiplying polynomials forms a closed system. | Construct viable arguments and critique the reasoning of others. | Which of the following responses shows that polynomials form a closed system under multiplication?  **Answer:** |
| 13 | Lesson 3: The Commutative Property | In this section, you will use the Commutative Property to prove algebraic expressions are equivalent. | Use the structure of an expression to identify ways to rewrite it. | Using the Commutative Property, prove that these algebraic expressions are equivalent. In 1–2 sentences, explain your result.  Expression 1:  Expression 2:  **Answer: Students should explain that the Commutative Property of Multiplication tells you that the values in a problem that features only multiplication can be arranged in a different order without affecting the final answer; therefore, Expression 1 and Expression 2 are equivalent algebraic expressions.** |
| 14 | Lesson 4: The Associative Property | In this section, you will use the Associative Property to prove algebraic expressions are equivalent. | Use the structure of an expression to identify ways to rewrite it. | Use the Associative Property to demonstrate that Expression 1 is equivalent to Expression 2.  **Expression 1:**  **Expression 2:**  **Answer:** |
| 15 | Lesson 5: The Distributive Property | In this section, you will use the Distributive Property to prove algebraic expressions are equivalent. | Look for and make use of structure. | Use the Distributive Property to prove that these algebraic expressions are equivalent. Explain your answer in one sentence for each expression and show your work.  Expression 1:  Expression 2:  **Answer: Student responses should include the following:**  **Expression 1 can be distributed:**    **Expression 2 is not in its simplest form:**    **Expression 1 and Expression 2 both simplify to . Therefore, they are equivalent.** |
| 16 | Lesson 6: Adding & Subtracting Polynomials | In this section, you will show that polynomials form a closed system under addition and subtraction. | Construct viable arguments and critique the reasoning of others. | In 1–2 sentences, explain why the following operation is a closed system under subtraction.  **Answer: The student should explain that when the two polynomials are subtracted, the solution is . A closed system is an operation that, when performed on polynomials, gives another polynomial. Since the difference of the polynomials  and  gives another polynomial, this operation is a closed system.** |
| 17 | Lesson 7: Multiplying Polynomials | In this section, you will show how multiplying polynomials forms a closed system. | Construct viable arguments and critique the reasoning of others. | Use the following multiplication problem to show how multiplying polynomials is a closed system.  **Answer:**  **The result is a polynomial, because all the powers of the exponents are positive. Thus, this example is a closed system.** |