# **Algebra 1 Unit Test Guide**

## 1-Variable Equations & Inequalities 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: True or False Statements | In this section, you will determine the truth value of equations and inequalities. | Construct viable arguments and critique the reasoning of others. | Consider the following expressions:  .  Which operator can be inserted to make the statement **true**?  Answer: <  [1-Variable Equations & Inequalities Unit Test Item #1 - GeoGebra](https://www.geogebra.org/calculator/bfqduxnr) |
| 2 | Lesson 2: True or False Statements | In this section, you will determine if given variable value(s) make equations and inequalities true or false. | Construct viable arguments and critique the reasoning of others. | Which of the following values for b makes the inequality **true**?  Answer: -13.5  [1-Variable Equations & Inequalities Unit Test Item #2 - GeoGebra](https://www.geogebra.org/calculator/fzvspccj) |
| 3 | Lesson 3: Solution Sets of Equations & Inequalities | In this section, you will use set notation to express the value(s) that make equations true. | Attend to precision. | Which of the following equations has the solution set {−3}?  Answer:  [1-Variable Equations & Inequalities Unit Test Item #3 - GeoGebra](https://www.geogebra.org/calculator/zvrqjt5h) |
| 4 | Lesson 3: Solution Sets of Equations & Inequalities | In this section, you will use set notation to express the value(s) that make inequalities true. | Attend to precision. | Which set expresses the solution to the compound inequality ?  Answer: |
| 5 | Lesson 4: Solving Linear Equations | In this section, you will use properties of equality to justify each step in the process of solving linear equations. | Construct viable arguments and critique the reasoning of others. | What property of equality is displayed in step 3 in the solving of ?  **Step 1:**  **Step 2:**  **Step 3:**  **Step 4:**  Answer: Subtraction Property of Equality |
| 6 | Lesson 4: Solving Linear Equations | In this section, you will identify linear equations that have the same solution set. | Make sense of problems and persevere in solving them. | Which linear equation has the same solution set as ?  Answer:  [1-Variable Equations & Inequalities Unit Test Item #6 - GeoGebra](https://www.geogebra.org/calculator/vuqngnmt) |
| 7 | Lesson 5: Solving Linear Inequalities | In this section, use a process of justifying each step with the properties of inequality to solve linear inequalities. | Construct viable arguments and critique the reasoning of others. | Which option is the solution to the inequality ?  Answer: |
| 8 | Lesson 5: Solving Linear Inequalities | In this section, you will graph solution sets for linear inequalities on a number line. | Make sense of problems and persevere in solving them. | Graph .  Answer: |
| 9 | Lesson 6: Multiple Equations or Inequalities | In this section, you will determine solution sets for two or more equations or inequalities joined by "and" or "or." | Reason abstractly and quantitatively. | Find the solution set of  and .  Answer: |
| 10 | Lesson 6: Multiple Equations or Inequalities | In this section, you will graph solution sets on a number line for two or more equations or inequalities joined by *and* or *or*. | Reason abstractly and quantitatively. | Use the image to answer the question.  Select the solution set represented on the graph.  Answer: |
| 11 | Lesson 7: Variable Expressions in Denominators | In this section, you will rewrite equations containing variables in denominators as two equations joined by "and." | Make sense of problems and persevere in solving them. | What is the undefined value for the equation ?  Answer: |
| 12 | Lesson 7: Variable Expressions in Denominators | In this section, you will solve equations that include a variable in the denominator. | Make sense of problems and persevere in solving them. | Solve for *s* in the following equation: .  𝑠 = \_\_\_\_\_  Answer: 8 |
| 13 | Lesson 8: Rearranging Formulas | In this section, you will use the properties of equality to rearrange formulas to highlight different quantities of interest. | Reason abstractly and quantitatively. | Which correctly shows the area formula for a trapezoid,  rearranged for the quantity of interest h?  Answer: |
| 14 | Lesson 8: Rearranging Formulas | In this section, you will use units to help justify that rearrangements of formulas make sense. | Reason abstractly and quantitatively. | Given the formula for time in terms of distance and velocity, , what operation would you use to isolate the distance?  Answer: multiplication |
| 15 | Lesson 9: Creating One-Variable Equations & Inequalities | In this section, you will use equations created with one variable to solve problems. | Make sense of problems and persevere in solving them. | Sebastian needed to buy new tires for his car. The tire shop was running a holiday deal that allowed customers to buy three tires and get the fourth tire for $5. If the total price for all his tires was $237.50, what was the cost of each of the first three tires?  Answer: $77.50 |
| 16 | Lesson 9: Creating One-Variable Equations & Inequalities | In this section, you will represent constraints of a contextual situation by interpreting solutions of equations and inequalities as viable or nonviable. | Make sense of problems and persevere in solving them. | A 10-gallon water cooler in an office provides water for the whole department. Each hour, 30 ounces of water are removed from the cooler and drunk by office workers. Write an equation to show how long the water in the cooler will last. (10 gallons is 1,280 ounces.)  Answer: |
| 17 | Lesson 4: Solving Linear Equations | In this section, you will use properties of equality to justify each step in the process of solving linear equations. | Construct viable arguments and critique the reasoning of others. | Justify your steps using the properties of equality and determine the number of solutions to the equation .  Answer:  Distributive Property  Addition Property of Equality  No solution |
| 18 | Lesson 5: Solving Linear Inequalities | In this section, use a process of justifying each step with the properties of inequality to solve linear inequalities. | Construct viable arguments and critique the reasoning of others. | Using the properties of inequality, justify both steps in solving the inequality .  Answer:  Addition Property of Inequality  Multiplication Property of Inequality |
| 19 | Lesson 7: Variable Expressions in Denominators | In this section, you will rewrite equations containing variables in denominators as two equations joined by "and." | Make sense of problems and persevere in solving them. | Rewrite the equation in two equations joined by “and.”  Answer:  and  is undefined if is equal to zero, so .  By the Addition Property of Inequality, this is equivalent to .  By the Division Property of Inequality, this is equivalent to . |
| 20 | Lesson 8: Rearranging Formulas | In this section, you will use the properties of equality to rearrange formulas to highlight different quantities of interest. | Reason abstractly and quantitatively. | Rearrange the slope formula  for the quantity of interest 𝑚. Make sure to show each step.  Answer: |
| 21 | Lesson 9: Creating One-Variable Equations & Inequalities | In this section, you will represent the constraints of a contextual situation by interpreting solutions of equations and inequalities as viable or nonviable. | Make sense of problems and persevere in solving them. | Dezeree received a $100 gift card and needs new sweaters for school. The sweaters cost $27.50 each. Write an equation to determine how many sweaters she can buy and spend exactly $100, solve it, and determine if the value is a viable solution.  Answer: Student answers should include the following:  .  This is not a viable solution because you cannot buy 0.64 of a sweater. |