Acc. Algebra I/Geom. A Unit 2 Reasoning with Linear Equations & Inequalities

References

HMH Georgia Acc. Coordinate Algebra/Geom. A Textbook:
Unit 1: Modules 1; Unit 2 Modules 3-5, 9-10, 12-13; Unit 3 Modules 8-9

Check with you teacher for online access: my.hrw.com

Web Resources

- http://mathbitsnotebook.com/Algebra1/LinearEquations/LEGraphiLines.html
- http://mathbitsnotebook.com/Algebra1/LinearEquations/LEConstraintsLinearPractice.html
- http://mathbitsnotebook.com/Algebra1/Inequalities/IQgraphinglinear2.html
- http://mathbitsnotebook.com/Algebra1/Inequalities/IQGraphingPractice.html
- http://mathbitsnotebook.com/Algebra1/Systems/SYlinearinequalities.html
- http://mathbitsnotebook.com/Algebra1/Systems/SYGraphIneqPractice.html
- http://mathbitsnotebook.com/Algebra1/Functions/FNNotationEvaluation.html
- http://www.math-play.com/slope-intercept-game.html
- http://www.webmath.com/equline1.html
- http://www.mathplanet.com/education/algebra-1/systems-of-linear-equations-and-inequalities/systems-of-linear-inequalities
- https://www.quia.com/rr/79715.html?AP_rand=1474276100

Dear Parents

Below you will find a list of concepts that your child will use and understand while completing Unit 2: Reasoning with Linear Equations & Inequalities. Also included are references, vocabulary and examples that will help you assist your child at home.

Concepts Students will Use and Understand

- Create Equations that Describe Numbers or Relationships
- Solve Equations & Inequalities
- Build a Function that Models a Relationship Between Two Quantities
- Understand the Concept of Function & Use Function Notation
- Interpret Functions that Arise in Applications in Terms of Context
- Analyze Functions using Different Representations

Vocabulary

- **Arithmetic Sequence.** A sequence of numbers in which the difference between any two consecutive terms is the same.
- **Average Rate of Change.** The change in the value of a quantity by the elapsed time. For a function, this is the change in the y-value divided by the change in the x-value for two distinct points on the graph.
- **Constant Rate of Change.** With respect to the variable x of a linear function $y = f(x)$, the constant rate of change is the slope of its graph.
- **Continuous.** Describes a connected set of numbers, such as an interval.
- **Discrete.** A set with elements that are disconnected.
- **Domain.** The set of x-coordinates of the set of points on a graph; the set of x-coordinates of a given set of ordered pairs. The value that is the input in a function or relation.
- **End Behaviors.** The appearance of a graph as it is followed farther and farther in either direction.
- **Explicit Formula.** A formula that allows direct computation of any term for a sequence $a1, a2, a3, .. . , an, . .$
- **Factor.** For any number x, the numbers that can be evenly divided into x are called factors of x. For example, the number 20 has the factors 1, 2, 4, 5, 10, and 20.
- **Interval Notation.** A notation representing an interval as a pair of numbers. The numbers are the endpoints of the interval. Parentheses and/or brackets are used to show whether the endpoints are excluded or included.
- **Linear Function.** A function with a constant rate of change and a straight line graph.
- **Linear Model.** A linear function representing real-world phenomena. The model also represents patterns found in graphs and/or data.
- **Parameter.** The independent variable or variables in a system of equations with more than one dependent variable.
- **Range.** The set of all possible outputs of a function.
- **Recursive Formula.** A formula that requires the computation of all previous terms to find the value of an.

- **Slope.** The ratio of the vertical and horizontal changes between two points on a surface or a line.
- **X-intercept.** The point where a line meets or crosses the *x*-axis
- **Y-intercept.** The point where a line meets or crosses the *y*-axis

Algebra 1 Unit 2 Practice Problems

Formulas

Slope-Intercept:

$y = mx + b$

Arithmetic Sequence:

$A_n = a_1 + (n-1)d$

Example 1

The sum of two consecutive integers is less than 83. Find the pair of integers with the greatest sum.

Example 2

Pablo and his family are driving to California for vacation. The trip is 1,505 miles and they drive at an average speed of 59 mph. Which equation would give the number of miles remaining until they reach their destination, M, in terms of h, the number of hours they have driven?

A. M = 59 + 1,505h	B. M = 1,505 - 59h
C. M = 1,505 + 59h	D. M = 59 - 1,505h

Example 3

Britany is leaving for an 800 mile road trip. Her plan is not to make any stops until she has 590 miles, or less, left of the drive. She is averaging 70 miles per hour. If *x* represents the number of hours driving, which of the following inequalities symbolizes this situation?

A. 590 - 70x > 800	B. 800 - 70x < 590
C. 590 - 70x < 800	D. 800 - 70x > 590

Example 4

What is the next term in this sequence? 4, 10, 16, …

Example 5

 Generate ordered pairs for the function y = x + 3 for x = -2, -1, 0, 1, and state the domain and range.

Answer Key

Example 1

Define a Variable: x = the first consecutive number, so x +1 = the second consecutive number

    Equation: x + x + 1 < 83

    2x < 82

    x < 41

    The numbers are 40 and 41

    Check: 40 + 41 < 83   81 < 83

Example 2

B. M = 1,505 – 59h

Example 3

B. 800 - 70x < 590

Example 4

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Example 5

(-2,1), (-1,2), (0,3), (1,4), (2,5) Domain: {-2,-1,0,1,2} Range: {1,2,3,4,5)