Learning Targets

## Learning Targets

### Linear Equations, Inequalities, and Systems

### Lesson 1: Planning a Pizza Party

* I can explain the meaning of the term “constraints.”
* I can tell which quantities in a situation can vary and which ones cannot.
* I can use letters and numbers to write expressions representing the quantities in a situation.

### Lesson 2: Writing Equations to Model Relationships (Part 1)

* I can tell which quantities in a situation can vary and which ones cannot.
* I can use letters and numbers to write equations representing the relationships in a situation.

### Lesson 3: Writing Equations to Model Relationships (Part 2)

* I can use words and equations to describe the patterns I see in a table of values or in a set of calculations.
* When given a description of a situation, I can use representations like diagrams and tables to help make sense of the situation and write equations for it.

### Lesson 4: Equations and Their Solutions

* I can explain what it means for a value or pair of values to be a solution to an equation.
* I can find solutions to equations by reasoning about a situation or by using algebra.

### Lesson 5: Equations and Their Graphs

* I can use graphing technology to graph linear equations and identify solutions to the equations.
* I understand how the coordinates of the points on the graph of a linear equation are related to the equation.
* When given the graph of a linear equation, I can explain the meaning of the points on the graph in terms of the situation it represents.

### Lesson 6: Equivalent Equations

* I can tell whether two expressions are equivalent and explain why or why not.
* I know and can identify the moves that can be made to transform an equation into an equivalent one.
* I understand what it means for two equations to be equivalent, and how equivalent equations can be used to describe the same situation in different ways.

### Lesson 7: Explaining Steps for Rewriting Equations

* I can explain why some algebraic moves create equivalent equations but some do not.
* I know how equivalent equations are related to the steps of solving equations.
* I know what it means for an equation to have no solutions and can recognize such an equation.

### Lesson 8: Which Variable to Solve for? (Part 1)

* Given an equation, I can solve for a particular variable (like height, time, or length) when the equation would be more useful in that form.
* I know the meaning of the phrase “to solve for a variable.”

### Lesson 9: Which Variable to Solve for? (Part 2)

* I can write an equation to describe a situation that involves multiple quantities whose values are not known, and then solve the equation for a particular variable.
* I know how solving for a variable can be used to quickly calculate the values of that variable.

### Lesson 10: Connecting Equations to Graphs (Part 1)

* I can describe the connections between an equation of the form $ax+by=c$, the features of its graph, and the rate of change in the situation.
* I can graph a linear equation of the form $ax+by=c$.
* I understand that rewriting the equation for a line in different forms can make it easier to find certain kinds of information about the relationship and about the graph.

### Lesson 11: Connecting Equations to Graphs (Part 2)

* I can find the slope and vertical intercept of a line with equation $ax+by=c$.
* I can take an equation of the form $ax+by=c$ and rearrange it into the equivalent form $y=mx+b$.
* I can use a variety of strategies to find the slope and vertical intercept of the graph of a linear equation given in different forms.

### Lesson 12: Writing and Graphing Systems of Linear Equations

* I can explain what we mean by “the solution to a system of linear equations” and can explain how the solution is represented graphically.
* I can explain what we mean when we refer to two equations as a system of equations.
* I can use tables and graphs to solve systems of equations.

### Lesson 13: Solving Systems by Substitution

* I can solve systems of equations by substituting a variable or an expression.
* I know more than one way to perform substitution and can decide which way or what to substitute based on how the given equations are written.

### Lesson 14: Solving Systems by Elimination (Part 1)

* I can solve systems of equations by adding or subtracting them to eliminate a variable.
* I know that adding or subtracting equations in a system creates a new equation, where one of the solutions to this equation is the solution to the system.

### Lesson 15: Solving Systems by Elimination (Part 2)

* I can explain why adding or subtracting two equations that share a solution results in a new equation that also shares the same solution.

### Lesson 16: Solving Systems by Elimination (Part 3)

* I can solve systems of equations by multiplying each side of one or both equations by a factor, then adding or subtracting the equations to eliminate a variable.
* I understand that multiplying each side of an equation by a factor creates an equivalent equation whose graph and solutions are the same as that of the original equation.

### Lesson 17: Systems of Linear Equations and Their Solutions

* I can tell how many solutions a system has by graphing the equations or by analyzing the parts of the equations and considering how they affect the features of the graphs.
* I know the possibilities for the number of solutions a system of equations could have.

### Lesson 18: Representing Situations with Inequalities

* I can write inequalities that represent the constraints in a situation.

### Lesson 19: Solutions to Inequalities in One Variable

* I can graph the solution to an inequality in one variable.
* I can solve one-variable inequalities and interpret the solutions in terms of the situation.
* I understand that the solution to an inequality is a range of values (such as $x>7$) that make the inequality true.

### Lesson 20: Writing and Solving Inequalities in One Variable

* I can analyze the structure of an inequality in one variable to help determine if the solution is greater or less than the solution to the related equation.
* I can write and solve inequalities to answer questions about a situation.

### Lesson 21: Graphing Linear Inequalities in Two Variables (Part 1)

* Given a two-variable inequality and the graph of the related equation, I can determine which side of the line the solutions to the inequality will fall.
* I can describe the graph that represents the solutions to a linear inequality in two variables.

### Lesson 22: Graphing Linear Inequalities in Two Variables (Part 2)

* Given a two-variable inequality that represents a situation, I can interpret points in the coordinate plane and decide if they are solutions to the inequality.
* I can find the solutions to a two-variable inequality by using the graph of a related two-variable equation.
* I can write inequalities to describe the constraints in a situation.

### Lesson 23: Solving Problems with Inequalities in Two Variables

* I can use graphing technology to find the solution to a two-variable inequality.
* When given inequalities, graphs, and descriptions that represent the constraints in a situation, I can connect the different representations and interpret them in terms of the situation.

### Lesson 24: Solutions to Systems of Linear Inequalities in Two Variables

* I can write a system of inequalities to describe a situation, find the solution by graphing, and interpret points in the solution.
* I know what is meant by "the solutions to a system of inequalities" and can describe the graphs that represent the solutions.
* When given descriptions and graphs that represent two different constraints, I can find values that satisfy each constraint individually, and values that satisfy both constraints at once.

### Lesson 25: Solving Problems with Systems of Linear Inequalities in Two Variables

* I can explain how to tell if a point on the boundary of the graph of the solutions to a system of inequalities is a solution or not.

### Lesson 26: Modeling with Systems of Inequalities in Two Variables

* I can interpret inequalities and graphs in a mathematical model.
* I know how to choose variables, specify the constraints, and write inequalities to create a mathematical model.



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