



MATH NEWS



LAFAYETTE
PARISH SCHOOL SYSTEM

Grade 6, Module 4, Topic H

6th Grade Math

Module 4: Application of Equations

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. In Module 4, Topic H, students apply their knowledge from the entire module to solve equations in real-world, contextual problems. Students use prior knowledge from Grade 4 to solve missing angle problems. Students use knowledge from Module 1 to construct tables of independent and dependent values in order to analyze equations with two variables from real life contexts. Students move from solving equations to writing inequalities which they understand have infinitely many solutions.



Focus Area Topic H:

Application of Equations

Words to Know:

Variable – A symbol for a **specific** number we don't know yet. It is usually a letter like a or b.

Independent Variable- the independent variable changes and when it does it affects the dependent variable.

Dependent variable- the dependent variable is affected by the independent variable. i.e; the amount of money I get paid depends on the number of hours I work. The amount of hours is the **independent** variable in this situation and the amount of money I get paid is the dependent variable because, the amount of money I get paid depends on the number of hours I worked.

Evaluate – to calculate the value of an equation.

Sum – the result of adding two or more numbers.

Equation – an equation says that two things are the same, using mathematical symbols

Obtuse angle- an angle which measures between 90 and 180 degrees

Right angle- an angle which measures exactly 90 degrees

Straight angle- an angle which measures exactly 180 degrees

Reflex angle- an angle which measures between 180 and 360 degrees.

Acute angle- an angle which measures greater than 0° and less than 90°.

Focus Area Topic H:

Applications of Equations

Students use their prior knowledge of angles from fourth grade to solve missing angle problems.

Sample Problems and Solutions:

Angle ABC measures 90°. The angle has been separated into two angles. If one angle measures 57°, what is the measure of the other angle?

How are these two angles related?

The two angles have a sum of 90°.

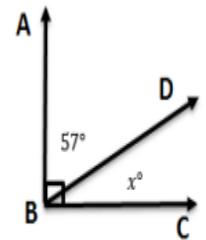
What equation could we use to solve for x.

$$x^\circ + 57^\circ = 90^\circ$$

Now let's solve.

$$\begin{aligned} x^\circ + 57^\circ - 57^\circ &= 90^\circ - 57^\circ \\ x^\circ &= 33^\circ \end{aligned}$$

The unknown angle is 33°



Students analyze an equation in two variables to choose an independent variable and dependent variable. They create a table of values to represent those values by placing the independent values in the left column of the table and dependent variable on the right.

Sample Problem and Solution:

Marcus reads for 30 minutes each night. He wants to determine the total number of minutes he will read over the course of a month. He wrote the equation $t = 30d$ to represent the total amount of time that he has spent reading, where t represents the total number of minutes read and d represents the number of days that he read during the month. Determine which variable is independent and which is dependent. Then, create a table to show how many minutes he has read in the first seven days.

Number of Days (d)	Total Minutes Read (30d)
1	30
2	60
3	90
4	120
5	150
6	180
7	210

Focus Area Topic H:

Solving Equations (cont.)

When setting up the table for the previous example we want the independent variable (number of days) in the first column on the left and the dependent variable (total minutes read) in the right column. The minutes read in this situation depends on the number of days Marcus reads. If he reads 5 days then he would have read for 150 minutes.

Students analyze an equation in two variables, choose an independent variable and a dependent variable, make a table, and make a graph for the equation by plotting the points in the table.

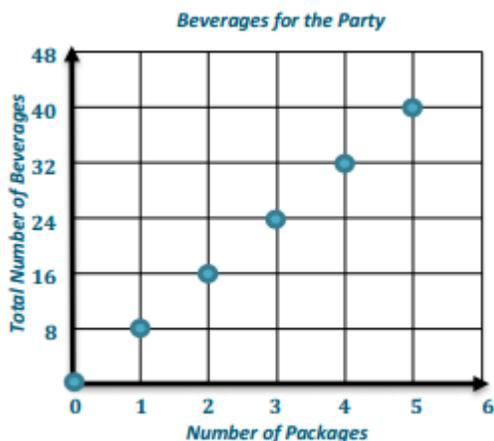
Sample Problems and Solutions:

Xin is buying beverages for a party that come in packs of 8. Let p be the number of packages Xin buys and t be the total number of beverages. The equation $t = 8p$ can be used to calculate the total number of beverages when the number of packages is known. Determine the independent and dependent variable in this scenario. Then, make a table using the whole number values of p less than 6.

# of Packages(p)	Total Number of Beverages($t=8p$)
0	0
1	8
2	16
3	24
4	32
5	40

The total number of beverages is the dependent variable because the total number of beverages depends on the number of packages purchased. Therefore, the independent variable is the number of packages purchased.

Make a graph for the table in the table.



To make a graph, we must determine which variable is measured along the horizontal axis and which variable is measured along the vertical axis. Generally the independent variable is measured along the x-axis and the dependent variable is graphed along the y-axis.

In the last part of the module, students understand solving an inequality is answering the question of which values from a specified set, if any, make the inequality true.

Sample Problem and Solution:

Given this set of numbers, choose all the numbers that make the inequality true.

$$\{3,4,7,9,12,18,32\}$$

$$\frac{1}{3}f < 4; \quad \text{Answer } \{3,4,7,9\}$$

$$m + 7 \geq 20 \quad \text{Answer: } \{18,32\}$$

Students recognize that inequalities of the form $x < c$ and $x > c$, where x is a variable and c is a fixed number, have infinitely many solutions when the values of x come from a set of rational numbers.

Sample Problem and Solution:

Caleb has at least \$5. What amount of money could Caleb have? Write and graph an inequality to model the situation.

$$c \geq 5; \quad \text{Caleb could have 5 dollars or more.}$$

To graph this situation, we circle the number 5 and color in the circle. Then we shade in the number line by darkening the arrow toward the right to indicate the solution is 5 and all the values to the right of 5. This graph models all numbers greater than or equal to 5.



Li Chen has less than \$5.

$$L < 5$$



To graph this situation, we circle the number 5, but we leave the circle open because the solution is all numbers less than 5 but does not include 5. We shade the number line to the left of 5 to include all numbers to the left of 5. This graph models all numbers less than 5.