Continuing to practice and maintain math skills that were learned this year is an essential part of being prepared for the next school year. This summer, every CMS student will be given a packet of assignments to complete.

Here's how summer math will work:

- Students will complete the assigned problems on paper.
- Students will complete the assigned exercises and turn them in to their teacher by September 10, 2021.
- Students are encouraged to look for help on items they are having difficulty with.

In addition to the summer math packet there are many small ways to incorporate math at home. Talking to your children about the math that occurs in everyday life will help them to see how useful math is. You might want to try some of these ideas:

- Cooking
- Playing card games or board games
- Talking about statistics while watching baseball
- Discuss rates as you are driving in the car
- Practice measuring as you are doing home projects
- Compare pricing while looking at the grocery circular

If you have any questions, please contact kristina.sparfven@chariho.k12.ri.us
Questions about modifications for special education students, please contact iris.ornberg@chariho.k12.ri.us .

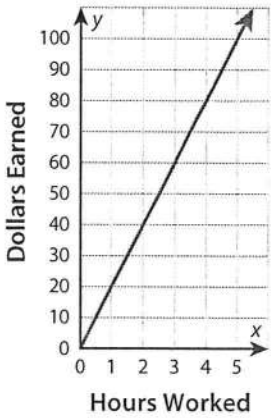
All work is due on September 10, 2021. This will count for two homework grades in quarter 1.

Grade 7→8 Summer

Set 5 Interpret Graphs of Proportional Relationships

➤ **Fill in the blanks.**

1. The graph shows the proportional relationship between the hours Jacqueline works and the amount she earns.

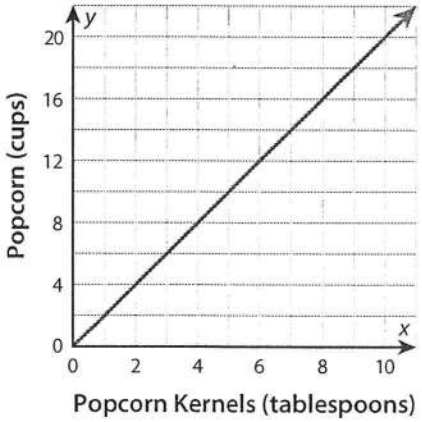


The point (3, 60) represents that Jacqueline earns $ _____ in _____ hours.

The point _____ shows that the unit rate is $ _____ per hour.

The constant of proportionality is _____.

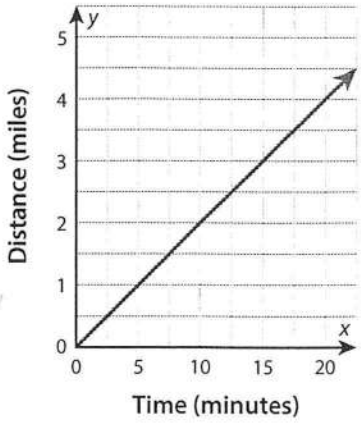
2. The graph shows the proportional relationship between the amount of popcorn kernels and the amount of popcorn that can be made.



The point _____ means that _____ cups of popcorn can be made with 0 tablespoons of popcorn kernels.

The constant of proportionality is _____.

3. The graph shows the proportional relationship between the time, in minutes, and the distance, in miles, an athlete runs.



The point (20, 4) represents that the athlete runs _____ miles in _____ minutes.

The constant of proportionality is _____.

Set 6 Identify the Constant of Proportionality

➢ **Identify the constant of proportionality for each relationship.**

1. For every hour he spends doing homework, Denzel plays video games for $\frac{1}{4}$ hour. What is the constant of proportionality for the relationship between time playing video games and time doing homework? _____

2. For each cup of oats in a recipe, a baker adds $1\frac{1}{2}$ teaspoons of cinnamon. What is the constant of proportionality for the relationship between teaspoons of cinnamon and cups of oats? _____

Set 7 Solve Proportional Relationship Problems

➢ **Solve the problems. Show your work.**

1. The ratio of nonfiction books to fiction books on a shelf is 5 : 3. There are 12 fiction books on the shelf. How many books are on the shelf?

2. A recipe for 2 dozen muffins uses $\frac{2}{3}$ cup of walnuts. Greg has $\frac{4}{5}$ cup of walnuts. Does Greg have enough walnuts to make 3 dozen muffins?

3. To make purple paint, Sofia mixes $1\frac{1}{6}$ cups blue paint and $\frac{1}{3}$ cup red paint. How much red paint does Sofia need to make 4 cups of purple paint?

 Name:

Set 1 Find Unit Rates Involving Ratios of Fractions

➢ **Find the unit rate to solve the problems. Show your work.**

1. A jogger runs $1\frac{4}{5}$ miles in $\frac{1}{4}$ hour and continues jogging at the same rate. What is the jogger's speed in miles per hour?

2. A recipe calls for $\frac{1}{4}$ teaspoon of baking powder for every $\frac{2}{3}$ cup of flour. How many teaspoons of baking powder should be used for 1 cup of flour?

Set 2 Identify the Constant of Proportionality in Tables

➢ **Fill in the blanks.**

1. The table shows the cost of tickets to an event.

Number of Tickets	1	2	3	4	5	6
Cost (dollars)	6	12	18	24	30	36

The unit rate for dollars per ticket is _____.

The constant of proportionality for the relationship of cost in dollars to number of tickets is _____.

2. The table shows the amounts of water and oats to make oatmeal.

Cups of Water	2	4	6	8	10	12
Cups of Oats	1	2	3	4	5	6

The constant of proportionality for the relationship of cups of water to cups of oats is _____.

Set 3 Represent Proportional Relationships by Equations

➤ **Write an equation to represent each relationship. Show your work.**

1. A lemonade recipe calls for 1 cup of water for every $\frac{1}{3}$ cup of lemon juice. Write an equation to show the relationship between the amount of water, w, and lemon juice, j.

2. A salesperson earns \$6 in $\frac{1}{2}$ hour. Write an equation to show the relationship between the money a salesperson earns, m, and the hours he works, h.

3. The distance a cyclist travels is proportional to the time she spends cycling. She travels 4 mi in $\frac{1}{4}$ hour. Write an equation to show the relationship between the distance she travels, d, and the hours she spends cycling, h.

Set 4 Identify Proportional Relationships

➤ **Calculate ratios to show whether each relationship is proportional. Show your work.**

1. The table compares the number of minutes a car has been driving and the number of signs it has passed.

Minutes	0	2	4
Signs	0	4	16

2. It costs \$35 to hire a musician for 1 hour, \$70 to hire a musician for 2 hours, and \$105 to hire a musician for 3 hours.

Name:

Set 1 Multiplication with Negative Integers

➢ **Fill in the blanks with *negative, positive,* or *zero.***

1. The product of two negative numbers is _____.
2. The product of a negative number and zero is _____.
3. The product of a negative number and a positive number is _____.
4. The product of a positive number and zero is _____.
5. The product of three negative numbers is _____.
6. The product of two negative numbers and a positive number is _____.

Set 2 Multiply with Negative Numbers

➢ **Multiply. Show your work.**

1. $4.5(-1.7)$
2. $-\frac{1}{2}\left(-3\frac{1}{3}\right)$
3. $-2\frac{2}{5}\left(-4\frac{3}{8}\right)$
4. $-5(0.6)$
5. $-\frac{4}{10}\left(\frac{3}{5}\right)$
6. $-4(-0.2)(-1.5)$

Set 3 Divide with Negative Numbers

➢ **Divide. Show your work.**

1. $-6 \div 0.2$
2. $-\frac{1}{2} \div \left(-\frac{2}{3}\right)$
3. $-4\frac{2}{3} \div 1\frac{5}{9}$

Set 9 Write Equations in Two Variables

➢ **Solve the problems. Show your work.**

1. The total cost of having a meal delivered to your house is equal to the cost of the meal plus the delivery fee of $5.

   a. Write an equation in two variables that shows how to use the total cost of the meal to find the cost of the meal before the delivery charge is applied.

   b. Which is the independent variable in your equation? _____

   c. Which is the dependent variable in your equation? _____

Set 10 Work with One-Variable Inequalities

➢ **Solve problems 1 and 2.**

1. Circle the values that are solutions of the inequality $16 > f$.

   -10 20 16 5 -25 30

2. Circle the values that are solutions of the inequality $j \geq -3$.

   -100 -3 0 5 100 -1

➢ **Write and graph an inequality to show the situation in problem 3.**

3. The temperature outside is no more than 4 °C.

Set 6 Solve Multi-Step Equations

➤ **Solve the equations. Show your work.**

1. $6s + 15 = 22.5$
2. $8(x - 4) = 30$
3. $\frac{3(m + 4)}{5} = 2$

Set 7 Write and Solve Inequalities

➤ **Write an inequality to represent and solve each problem. Show your work.**

1. The product of $x - 3$ and 6 is at least 15. What are all the possible values of x? Graph the solution.

2. Sam wants to have an average greater than 75% on his math tests. His grades so far are 78%, 63%, and 79%. What grades can he earn on his next test to reach his goal? Graph the solution.

Set 8 Add with Negative Numbers

➤ **Fill in the blanks with *negative* or *positive* for problems 1–3.**

1. The sum of two negative numbers is always _____.

2. The sum of -9.6 and $3\frac{1}{2}$ is _____.

3. The sum of 21 and -15.5 is _____.

➤ **Fill in the blanks with *greater than* or *less than* for problems 4–6.**

4. The sum of a negative number and a positive number is always _____ the positive number.

5. The sum of a negative number and a positive number is always _____ the negative number.

6. The sum $-3 + a$ is _____ -3 if a is negative.

Set 9 Subtract with Negative Integers

➤ **Fill in the blanks with *negative* or *positive*.**

1. The difference $-9 - 3$ is _____.

2. The difference $-3 - (-9)$ is _____.

3. If a is positive and b is _____, the difference $a - b$ is always positive.

4. If a is negative and b is _____, the difference $a - b$ is always negative.

Set 10 Multiply with Negative Integers

➤ **Fill in the blanks with *negative* or *positive*.**

1. The product of a negative number and a _____ number is always a positive number.

2. The product of four negative numbers is always _____.

3. The product of three negative numbers and two positive numbers is always _____.