Math 7
2016 Summer Break Packet

Note to the Student

You've learned so much in Grade 6! It is important that you keep practicing your mathematical knowledge over the summer to be ready for Math 7 Common Core. In this packet, you will find weekly activities for the summer break. ***Once you have completed the activities for a week, have a parent initial at the bottom of the page.*** Use a math journal to record and ***show all your work***.

Directions:

➢ You can print the summer break packet or write each problem on a separate piece of paper and staple them all together. Your work should be neat and organized so your teacher can read it and give you credit.

➢ *Pay attention to the gray boxes that you see at the beginning of each week's activities. Those boxes indicate the Common Core domain and standard that the*

subsequent activities address. If you see a NON-CALCULATOR SYMBOL *next to a gray box, then* <u>*do not use a calculator for the activities in that section*</u>*!*

This summer work will be worth extra credit. Bring it to school in the first two weeks of school and show it to your math teacher to receive credit.

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Where to Go to Get Help … or Practice!

During the course of your math work this summer, you may need some assistance with deepening your understanding the skills and concepts. You also might want to get some more practice. Here are some sites you can visit online:

To get the exact definition of each standard, go to www.corestandards.org and search for the content standard (for example, *7.NS.1a*).

LearnZillion has video lessons on every Math standard. Go to www.LearnZillion.com and click the link for *Math Video Lesson Library*. You can also search by standard or by LZ Code.
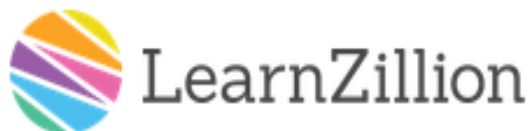
Khan Academy has helpful videos and self-guided practice problems for every grade level. Go to www.khanacademy.org to get started.

For extra math practice, register for the FREE *TenMarks* Online Summer Math Program at www.tenmarks.com.

If you were given an IXL account during the school year. You may work on 6th and 7th grade skills to prepare for the year. If you don't have an account, you can still practice for free.

WEEK 1 || Ratios & Proportional Relationships Standards 6.RP.1-6.RP.3:
Understand ratio concepts and use ratio reasoning to solve problems.

Directions:

1. Find five examples of ratios in the real world. Write them down and describe the situation in which they are found. *Remember, ratios are comparisons of two quantities which can be written in the following ways:

    1) a to b

    2) $\dfrac{a}{b}$

    3) a : b

Example: At the grocery store, Brandi noticed that there were three times as many carts as there were baskets for shoppers to use to carry their food.

The ratio of carts to baskets (c : b) is 3 to 1.

2. Create a problem using ratios for your parents/guardians or friends to solve. Write both your problem and solution in your journal.

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WEEK 2 || Number System Standards 6.NS.1-6.NS.3: Apply and exten

previous understandings of multiplication and division to divide fractions by fractions.

Directions: Complete the problems below.

1. Chef Emerald had a recipe that called for $\frac{3}{4}$ lb onions and $1\frac{1}{3}$ lbs of pork. He was preparing the recipe for a special event and needed to quadruple it to make enough for all of his guests. How many pounds of onions and pounds of pork would he need for the recipe? *Show all work.*

2.   Create a problem about the estimated cost of ingredients for the recipe if onions cost $2.99/lb. and pork costs $5.49/lb. Include both an estimated solution and an exact solution to see that your estimation is reasonable.

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WEEK 3 || Expressions & Equations Standard 6.EE.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.

Directions: Complete the problems below.

1. A town's total allocation for police officer's wages and benefits in a new budget is $800,000. If wages are calculated at $55,000 per officer and benefits at $25,000 per officer, write an equation where the solution is the number of officers the town can employ, if they spend their whole budget. Solve the equation.

2. Deon was offered a job at the nearby recreation center. The owner offered him $600 per week or $50 the first day and agreed to double it for each following day.
   - How could Deon make the most money?
   - Which deal should he accept and why?

3. Create three real-world mathematical problems involving variables to represent unknown numbers. *Be sure to create an answer key with explanations of how to solve each of your problems.*

WEEK 4 || Geometry Standard 6.G.3: Draw polygons in the coordinate

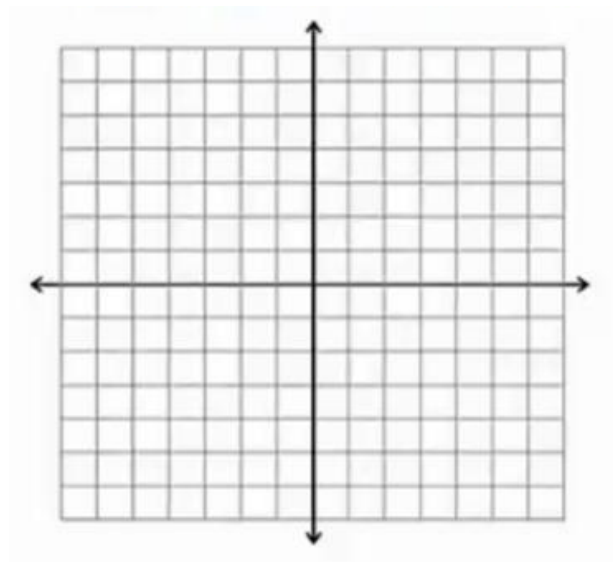| Parent Initial |
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coordinates for the vertices.

Directions: Complete Parts 1 and 2.

Part 1

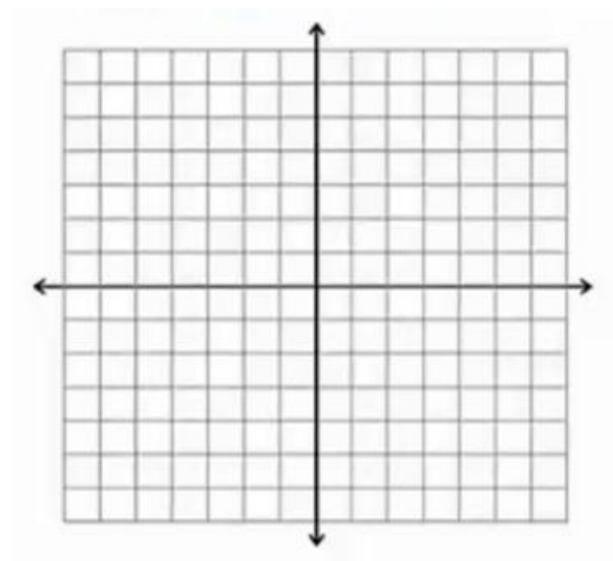1. Use the following coordinates to draw polygons on the coordinate plane below.

A. (6, 1)

B. (2, 4)

C. (-5, 4)

D. (-1, 1)

Name the figure: _____

A. (3, 3)

B. (-1, 3)

C. (-4, 0)

D. (-1,-3)

E. (3, -3)

Name the figure: _____

Part 2

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2. On graph paper (on the next page), draw your own coordinate plane. Label the X and Y axes.

3. Choose a room in your house and study the arrangement of the furniture.

4. Measure the dimensions of at least four pieces of furniture in the room you chose.

5. Create a scale, and then graph the pieces of furniture on your coordinate plane.

6. Write directions using your coordinate plane and furniture model. Give them to a parent to see if they can complete a transformation of the furniture according to the directions and scale model you created.

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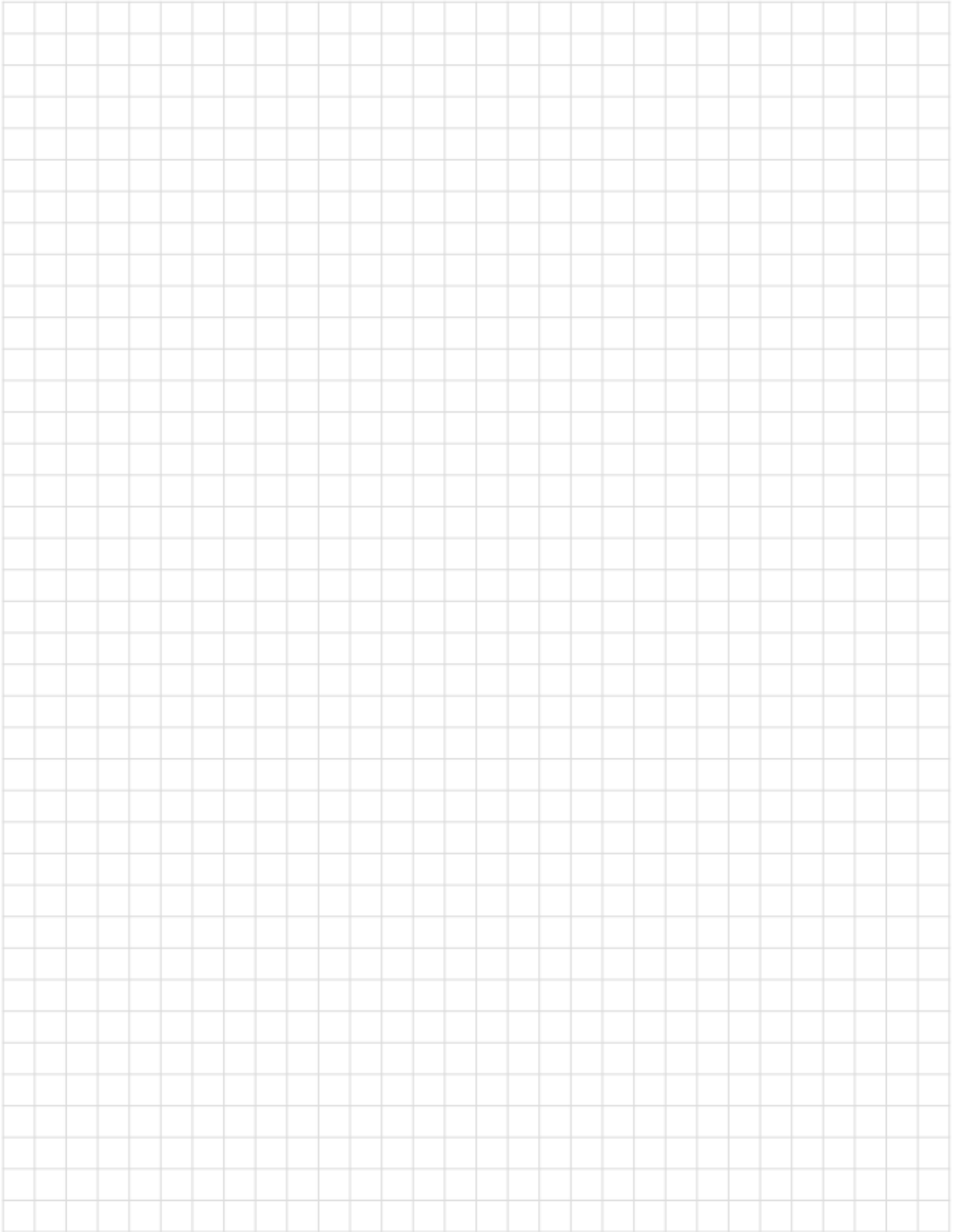
WEEK 5 || Number System Standard 6.NS.4: Find the greatest common factor of two whole numbers less than or equal to 100, and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers, 1-100, with a common factor as a multiple of a sum of two whole numbers with no common factor.

Directions: Solve the following problems.

1. The florist can order roses in bunches of one dozen and lilies in bunches of 8. Last month she ordered the same number of roses as lilies. If she ordered no more than 100 roses, how many bunches of each could she have ordered?

2. What is the smallest number of bunches of each could she have ordered? Explain your answer.

3. In your journal, create a table or draw a diagram to solve the problem. Explain your reasoning.

WEEK 6 || Statistics & Probability Standard 6.SP.2: Understand that a

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collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.

Directions: Solve the problems below.

1. The bar chart represents the scores from a quiz. Children were asked to name six boy bands in 30 seconds. Each score represents the number of correctly named bands.

Boy Bands
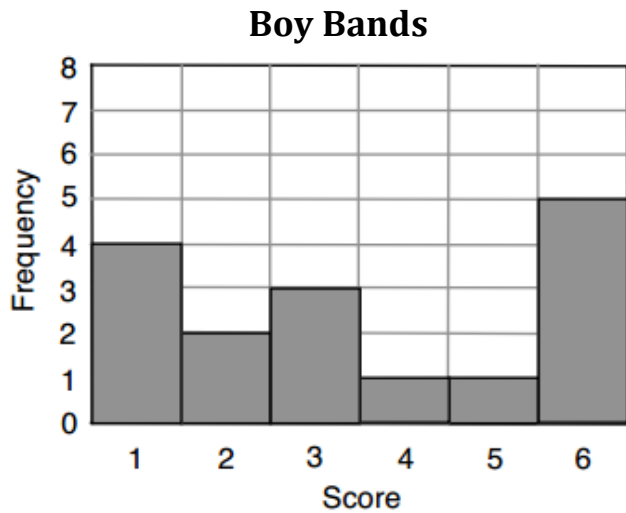
a. How many children were involved in the quiz? Show your work.

b. Complete the table with values for the Mean, Median, Mode, and Range of scores. Explain how you calculate each answer.
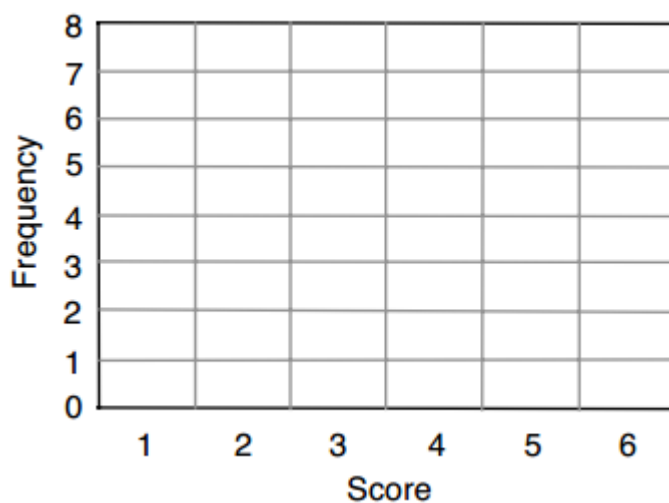
Mean Score	_____	
Median Score	_____	
Mode Score	_____	
Range of Scores	_____	

2. The results of another quiz question are shown in the table below. Draw a possible bar chart of the scores.

Mean score	3.5
Median score	3
Mode score	6
Range of scores	5

WEEK 7 || Expressions & Equations Standards 6.EE.4-6.EE.5: Apply previous understandings of arithmetic to algebraic expressions. Reason
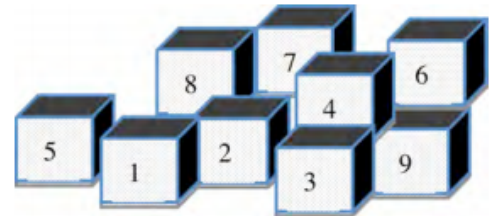
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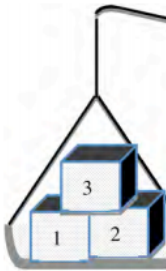| one-variable equations and inequalities. |

There are nine small boxes in a room. They all look exactly the same, but one is a bit heavier than the others.

William says:

I can use the scales to find the heavy one in just two steps!

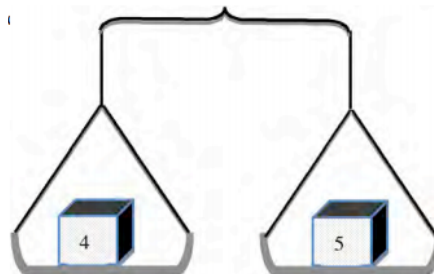First, William arranges the boxes like this:

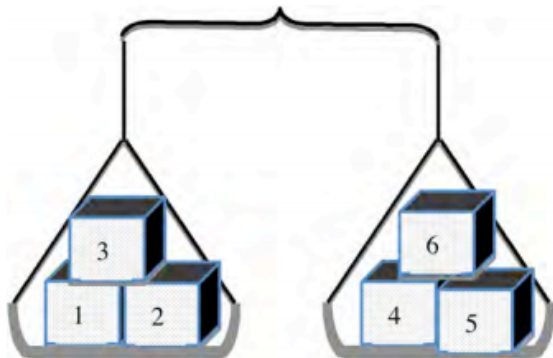1. Explain what William now knows about the heavy box.

Then William separates the boxes like this.

2. Which is the heavy box? Explain how you know.

3. Suppose the scales showed this the first time instead.

What should William do now to find the heavy box?

WEEK 8 || MATH 7 UNIT 1 PREVIEW – Ratios & Proportional Reason
Standard 7.RP.1: Understand ratio concepts and use ratio reasoning to
solve problems. **Number System Standard 7.NS.3:** Solve real world
problems involving the four operations with rational numbers.

Directions: Complete each task below.

Task 1:

Here is a recipe for making 8 doughnuts:

4 cups of flour
½ cup of milk
¾ cup of sugar
2 eggs
2 sticks of butter
One tablespoon of yeast

You want to make 28 doughnuts.

a. How much flour do you need? Show your work.

b. How much milk do you need? Show your work.

Task 2:

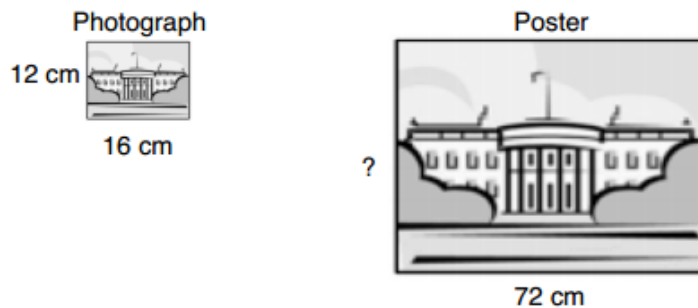Calculate the prices of the paint cans.
The prices are proportional to the amount of paint in the can.

		$12			$57.60
0.25 liters	0.7 liters	1 liter	2.5 liters	3.52 liters	......

Task 3:

Photograph

12 cm

16 cm

Poster

?

72 cm

a. The poster is 72cm wide. How high is the poster?

b. The building on the poster is 36cm tall. Is it possible to figure out how tall the building is on the photograph? If you think it is possible, show how. If you think it is not, explain why.

Task 4:

A local food company produces yogurt in ¾ cup tubs.

2 cups = 1 pint	2 pints = 1 quart
4 quarts = 1 gallon	16 fl. oz. = 1 pint

Show all your work as you answer the questions below:

1. The tubs of yogurt are sold for $0.75 each. Twenty percent of this   is profit for the food company. How much profit does the company make on each tub?

2. The machine that fills the ¾ cup tubs with yogurt runs 10 hours a day for 5 days a week. It fills 1,600 tubs an hour. How many gallons of yogurt are needed to fill 1,600 tubs?

3. How many gallons of yogurt are produced each week?

4. Each tub of yogurt contains 1.85g of fat. The company would like to reduce this amount by 15%, but instead of changing the yogurt composition, the company would like to alter the serving size. How many fluid ounces will the new container be?

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