

# Summer Math Activities for Students Entering Grade 3

**Dear Student / Parent / Guardian:**

**The Clifton School District Summer Math Activity assignment is designed to have you practice math skills and concepts in a fun and engaging way. To promote family time together, one part of the summer assignment is to have family game time. You can also play games with siblings and friends! Believe it or not, many games contain a lot of problem solving and expose you to mathematics in everyday life. The second part of the assignment is to have you practice math content through free online math games. Finally, to promote a STEAM connection, there are three Problem Solving Reading Mat activities that your child is encouraged to complete.**

**Online Math Games: Your assignment is to select 10 of the websites to practice your math for at least 10 minutes once a week. Of course, you can practice more than this, it's just a suggestion.**

**You will need to keep track of the different online and family games that you play with the logs provided in this packet. Your teacher will collect your logs and Problem Solving Activity pages when you return to school in September for extra credit, at least one homework pass, or classwork grade.**

**Students who do not have computer access can go to the Clifton Public Library and request a Library Card that will grant them internet access.**

**An electronic list of these websites is also posted on the Clifton website,  
<http://clifton.k12.nj.us/>**

## **Enjoy your Summer Vacation!!!**

## **Family Game Time**



*Here are some suggestions for your game time along with the math concepts/skills that the games reinforce:*

### **Suggested Board Games:**

Checkers and Chess – problem solving, number concepts

Chutes and Ladders® - counting forward and backward

Scrabble or Scrabble Junior® - addition, repeated addition or multiplication, problem solving

Monopoly® - money, counting, problem solving

Clue® - problem solving, counting

Mouse Trap® - counting, problem solving, STEM

Connect Four® - problem solving

Uno® - number recognition, problem solving, patterns

### **Card Games:**

Go Fish - number recognition, making sets, problem solving

Matching – number recognition, problem solving

Gin Rummy - making sets, number recognition, addition and subtraction, problem solving

Playing Card War- number recognition, magnitude of numbers

### **Outdoor Games:**

Playing baseball, kickball, soccer, hopscotch, four square, tag, and basketball teach averages, addition, strategy, problem solving, and number recognition.

# Math Practice Sites

**The following websites are designed to allow you to practice your math skills throughout the summer in a fun way!**

<https://www.funbrain.com/math-zone> Games are listed by grade level

<http://www.AAAMath.com> Interactive Math Activities

<http://www.missmaggie.org> “Around the World in 80 Seconds”

[http:// Brainpop.com/](http://Brainpop.com/) Try a quiz and extra practice

<http://www.arcademics.com> Lots of great interactive math games

<http://www.aplusmath.com> Games and Flashcards

<http://www.brainormous.com/> Problem solving and math games

<http://www.allmath.com/flashcards.php> Flash cards for all basic operations

<http://www.mathplayground.com/index.html> More math games

<http://www.mathplayground.com/games.html> Games for grades 1-6.

<http://www.ericmilou.com> Browse the Grade K-3 or 4-8 Math Links

<http://www.rsinnovative.com/rulergame/> Start off with 1 inch

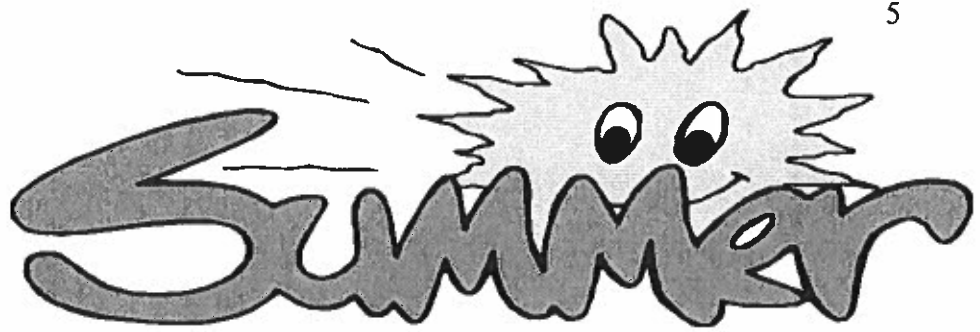
<http://illuminations.nctm.org/Search.aspx?view=search&gr=Pre-K-2> Search grade K-2 activities

<http://www.abcya.com/> Choose your grade level to choose a game

<https://www.prodigygame.com/> Sign up for a **free** account. Role playing math game for grades 1-8

**You can always choose a different online math game; just make sure it's a FREE game!**





**Summer Math Web Activities Log**

Date	Website Name/Activity	Time	Explain What You Did

**Please use the WEBSITE LOG to document what sites you've visited and how long you've spent practicing your math skills and concepts. Remember, you need to log AT LEAST 10 minutes once a week on 10 of the sites listed.**

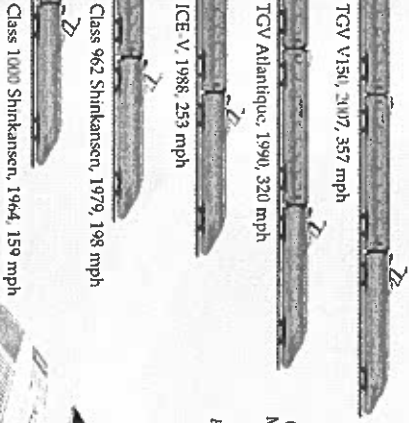
# Problem-Solving Reading Mat

## Speedsters

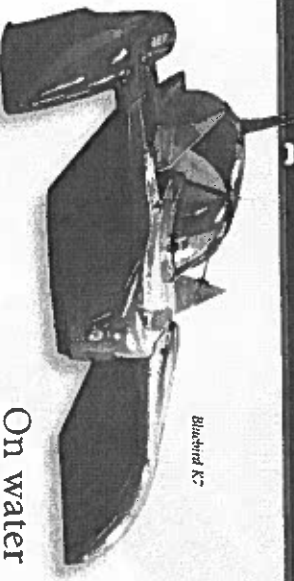
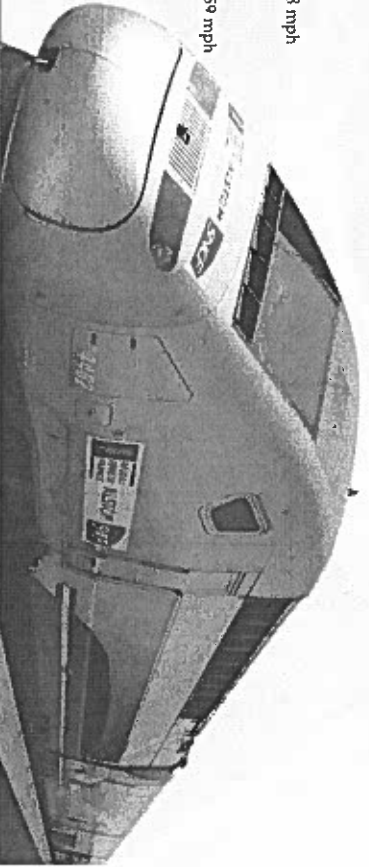
SCIENTISTS AND ENGINEERS have worked tirelessly to build vehicles that achieve the greatest speeds and the maximum power. Drivers and pilots have, meanwhile, set records by driving these speed machines to their absolute limits. Listed here are some of the world speed records in air, and on rails and water.

### Running on rails

On April 3, 2007, a French TGV (Train à Grande Vitesse) V150 locomotive set the world record for the fastest train running on wheels. It reached a speed of 357 mph (miles per hour) on a section of high-speed track between Paris and Strasbourg, France. The train did not carry passengers and had been specially modified to set the record.

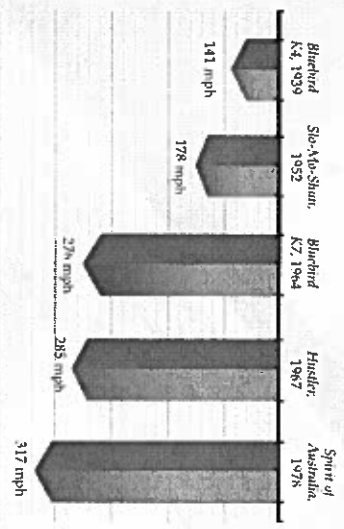


**RAIL RECORDS**  
This diagram shows the top speeds achieved by standard trains running on wheels.



The official water speed record was set by the jet-powered hydroplane *Spirit of Australia*. Ken Warby piloted it to a speed of 317 mph in Australia on October 8, 1978.

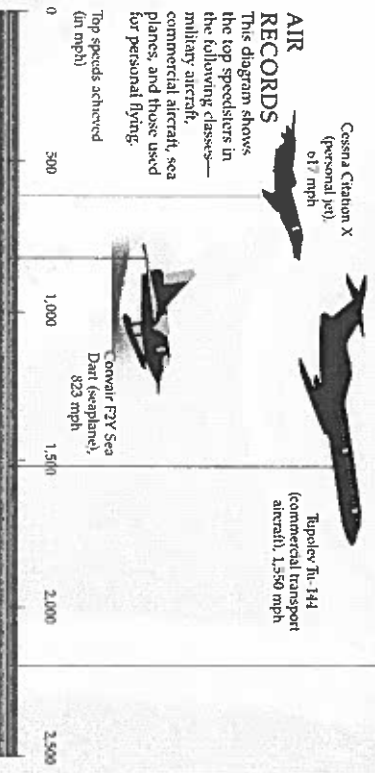
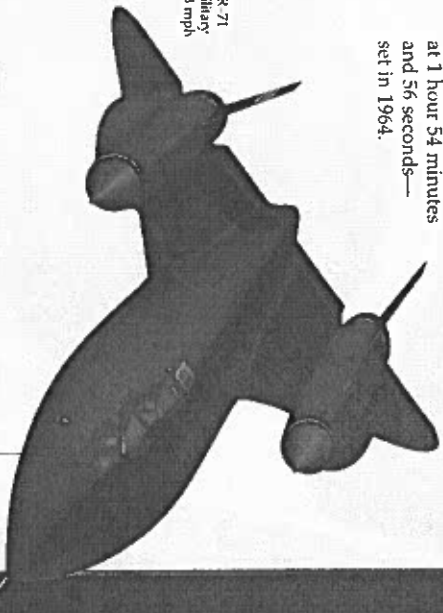
### On water



**WATER RECORDS**  
This diagram shows world water speed records over time. Falher and son Malcolm and Donald Campbell achieved successes in their Blüherd vessels in the 1930s and 1960s.

### Flying fast

The official air speed record for a manned, air-breathing jet aircraft is held by the Lockheed SR-71 Blackbird. It was flown by Captain Eldon Joersz and Major George Morgan, who set a record of 2,193 mph on July 28, 1976, near Beale Air Force Base in California. The jet also holds the record for the fastest flight between New York and London—at 1 hour 54 minutes and 56 seconds—set in 1964.



**AIR RECORDS**  
This diagram shows the top speedsters in the following classes—military aircraft, commercial aircraft, sea planes, and those used for personal flying.

Name \_\_\_\_\_

# Toy Vehicles for Sale

Tammy sells all kinds of toy vehicles at her toy store. Solve each problem any way you choose. Show your work. Write equations to solve both parts of each problem.

1. There are 32 toy cars and 29 toy boats in inventory. Tammy adds a new shipment of 26 toy trucks to the inventory. How many toy vehicles are in inventory now?

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ toy vehicles

2. Tammy has 28 toy planes in the store. She sells 19 toy planes. Then she receives a new shipment of 52 toy planes. How many toy planes does Tammy have in the store now?

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ toy planes

3. There are 16 toy trains in the window display. Tammy adds 32 toy trains. Tammy's sister takes 23 toy trains from the display. How many toy trains are still on display?

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ ○ \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ toy trains

Name \_\_\_\_\_

## Bike Trail

The paper shows how far three friends traveled on a bike trail.  
Use the paper to write and solve number story problems.

Carl - 35 miles

Max - 17 miles

Nick - 44 miles

1. Write an addition story about the information on the paper. Then write an equation. Solve the problem any way you choose. Show your work.

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2. Write a subtraction story about the information on the paper. Then write an equation. Solve the problem any way you choose. Show your work.

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PEARSON



Read and enjoy! Reading for a daily benefit. All levels reviewed.

# NUMBER SYSTEMS

The numbers we know and love today developed over many centuries from ancient systems. The earliest system of numbers that we know today is the Babylonian one, invented in Ancient Iraq at least 5,000 years ago.

**Building by numbers**  
The Ancient Egyptians used their mathematical knowledge for building. For instance, they knew how to work out the volume of a pyramid of any height or width.

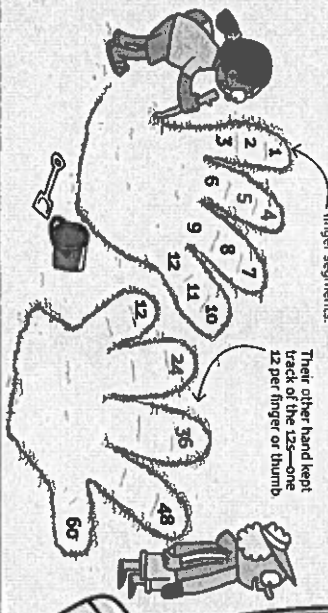
## Table of numbers

Ancient number systems were nearly all based on the same idea: a symbol for one was invented and repeated to represent small or low numbers. For larger numbers, usually starting at 50, a new symbol was invented.

	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90	100
Babylonian	Y	YY	YYY	YYYY	YYYYY	YYYYYY	YYYYYYY	YYYYYYY	YYYYYYY	<	<<	<<<	<<<<	<<<<<	<<<<<<	<<<<<<<	<<<<<<<<	<<<<<<<<<	<<<<<<<<<<
Ancient Egyptian	I	II	III	IIII	IIII	IIII	IIII	IIII	IIII	∩	∩∩	∩∩∩	∩∩∩∩	∩∩∩∩∩	∩∩∩∩∩∩	∩∩∩∩∩∩∩	∩∩∩∩∩∩∩∩	∩∩∩∩∩∩∩∩∩	∩∩∩∩∩∩∩∩∩∩
Ancient Greek	A	B	Γ	Δ	E	Ϛ	Z	H	Θ	I	K	Λ	M	N	Ξ	O	Τ	Ϟ	Ρ
Roman	I	II	III	IV	V	VI	VII	VIII	IX	X	XX	XXX	XL	L	LX	LXX	LXXX	XC	C
Chinese	一	二	三	四	五	六	七	八	九	十	二十	三十	四十	五十	六十	七十	八十	九十	百
Mayan	.	..	...	....	.....	.....	.....	.....	.....	=	≡	≡≡	≡≡≡	≡≡≡≡	≡≡≡≡≡	≡≡≡≡≡≡	≡≡≡≡≡≡≡	≡≡≡≡≡≡≡≡	≡≡≡≡≡≡≡≡≡

The Babylonians cut the 12s on one hand using 9 finger segments.

Their other hand kept track of the 12s—one 12 per finger or thumb.



**Counting in tens**  
Most of us learn to count using our hands. We have 10 fingers and thumbs (digits), so we have 10 numerals (also called digits). This way of counting is known as the base-10 or decimal system, after decem, Latin for "ten."

## Going Greek

Oddly enough, the Ancient Greeks used the same symbols for numbers as for letters. So 8 was 2—when it wasn't being 1!

alpha and 1	digamma and 6
beta and 2	zeta and 7
gamma and 3	eta and 8
delta and 4	theta and 9
epsilon and 5	iota and 10

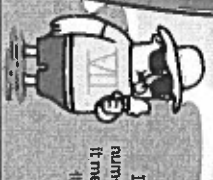
## No numbers

Imagine a world with no numbers. There would be...

- No dates, so no calendars.
- No money, no buying or selling.
- No scores or times in sports, which would make things very dull.
- No way of measuring distances—just keep walking until you get there!
- No science, so no amazing inventions or technology, and no phone numbers.

## Roman numerals




In the Roman number system, if a numeral is placed before a larger one, it means it should be subtracted from it. So IV is four ("4" less than "V").



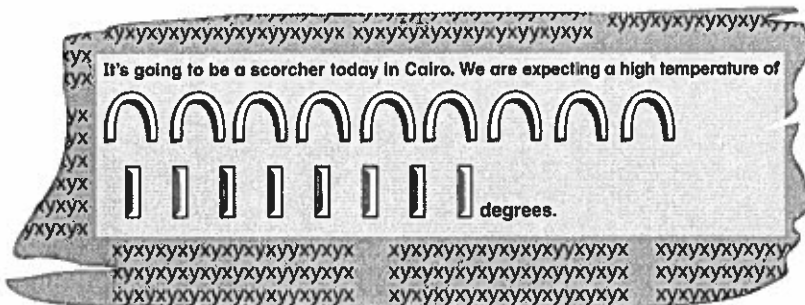
Name \_\_\_\_\_

## What's Your Number?

The Ancient Egyptians used symbols to write numbers. They did not have a place-value system like we do. They had to repeat symbols. To show the number 40, they had to write the symbol for 10 four times.

	1	10	100
Ancient Egyptian Symbol			

1. Read the weather forecast. Write the number.






2. How many students are in your class? Write the number. Then write the number using Egyptian symbols.
3. How old are you? Write the number. Then write the number using Egyptian symbols.
4. What is the total number of letters in your first and last names? Write the number. Then write the number using Egyptian symbols.

Name \_\_\_\_\_

# Number Choices

There are many ways to write numbers. Let's look at some ways to write numbers like the Egyptians!

	1	10	100
Ancient Egyptian Symbol			

Show a way to make each number. Use Egyptian symbols. Then write the number word.

1. 13

Tens	Ones

\_\_\_\_\_

2. 22

Tens	Ones

\_\_\_\_\_

3. 67

Tens	Ones

\_\_\_\_\_

4. Tyler and Beth showed different ways to write 16 using Egyptian symbols. Both answers are correct. How can that be? Explain.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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11

# Problem-Solving Reading Mat

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## Icy showers

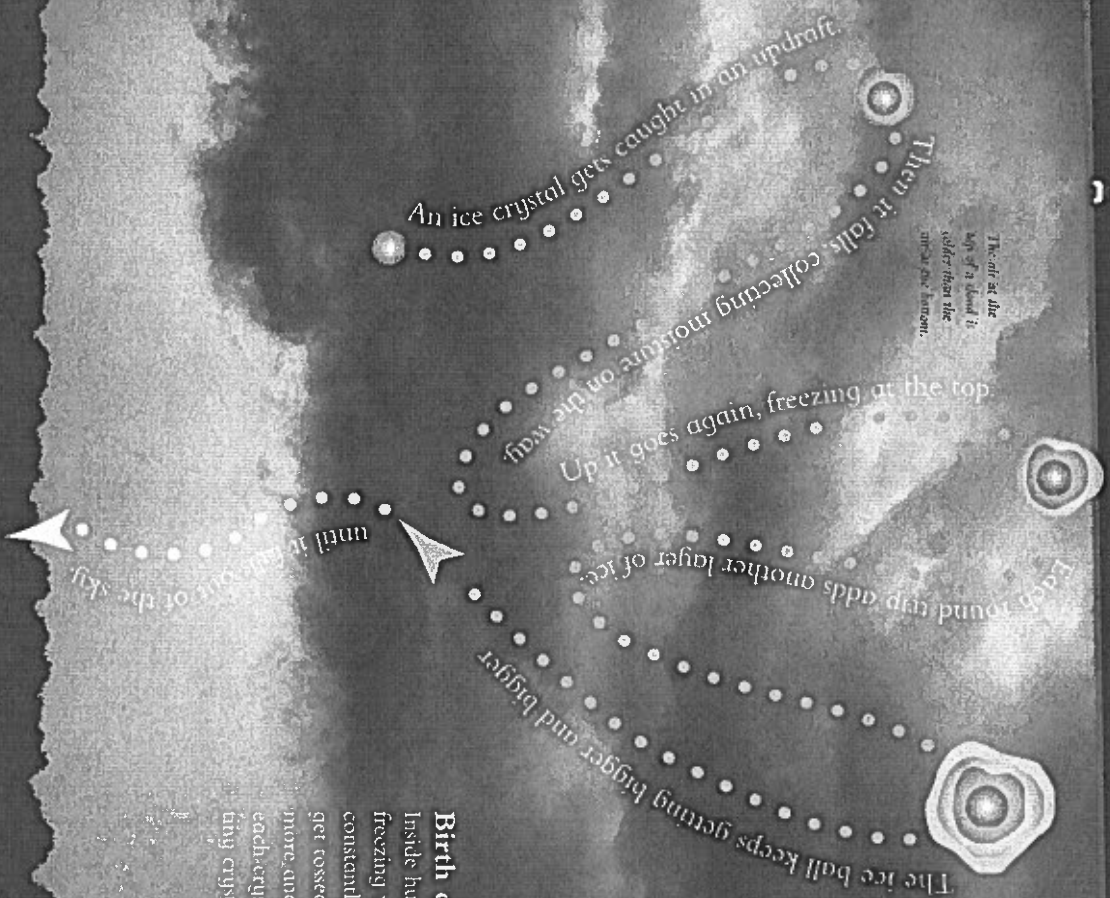
When solid pellets of ice fall out of the sky, we call it hail. Some hailstones are about the size of plums, and others are smaller than peas.



Giant hailstones can burst through roofs and hurt people.

These hailstones are as big as golf balls!

**Icy rockets**  
Small hailstones are round and white, but bigger ones usually have knobby shapes and jagged surfaces. The largest hailstone ever recorded in the US measured over 18 inches around.



### Birth of a hailstone

Inside huge storm clouds, strong, freezing winds whirl around constantly. Any ice crystals inside get tossed up and down, building up more and more frozen layers on each crystal. These layers turn the tiny crystals into hailstones.

Name \_\_\_\_\_

# Patterns in Hailstones and Numbers

Pieces of ice can fall from the sky. Hailstones are one example. All hailstones have rings like a tree. The rings often form a pattern. Numbers have patterns too.

The students in Ms. Aaron's class live in a part of the country where there are a lot of hailstorms. Look for a pattern in the chart. Then fill in the missing numbers.

Use the chart below to solve Items 1–4.

10	20	30	40	50	60	70	80	90	100
110	120	130							
210									
310									
410	420	430	440	450	460	470	480	490	500

1. Maya counted 120 hailstones in her backyard.  
Circle 120 on the chart.  
100 less than Maya's hailstones is \_\_\_\_\_.  
10 less than Maya's hailstones is \_\_\_\_\_.
2. Baron found 230 hailstones in his backyard.  
Circle 230 on the chart.  
100 less than Baron's hailstones is \_\_\_\_\_.  
10 less than Baron's hailstones is \_\_\_\_\_.
3. After a hailstorm, the students collected 390 hailstones.  
Circle 390 on the chart.  
80 less than the students' hailstones is \_\_\_\_\_.  
100 less than the students' hailstones is \_\_\_\_\_.
4. Most of the hailstones melted quickly. 250 hailstones did NOT melt and were put in a pile. Circle 250 on the chart.  
60 less than the hailstones in the pile is \_\_\_\_\_.  
100 less than the hailstones in the pile is \_\_\_\_\_.

Name \_\_\_\_\_

## It's Raining All Around

Some cities get very little rain. Others get a lot. Animals, plants, and people adapt to the environment they live in.

Use the table below to answer questions about rainfall amounts. Choose any strategy to solve each subtraction problem. Show your work. Then explain why the strategy works.

City	Average Yearly Rainfall
Houston, Texas	135 cm
New York, New York	_____ cm
London, England	61 cm
Berlin, Germany	56 cm
Baton Rouge, Louisiana	157 cm
Pensacola, Florida	165 cm

1. How much more rainfall does Houston get than Berlin?
  
  
  
  
  
  
  
  
  
  
2. How much more rainfall does Pensacola get than Baton Rouge?
  
  
  
  
  
  
  
  
  
  
3. The total average of yearly rainfall for Baton Rouge and New York is 271 centimeters. How much rainfall does New York get? Write the number in the table.