

LETTER HOME

Place Value and Large Numbers

Dear Family Member:

Have you ever said: “I’ve got a million things to do,” or “I’ve told you a million times. . . ”? Through the activities in this unit, students will learn about what a million really is as they explore patterns in our place value system. Students will complete hands-on activities to help them “see” 1,000,000.

The class will use round numbers to answer questions that do not require an exact answer. Much of the math we do in life requires making good estimates quickly, rather than computing exactly. As with most skills, students need lots of practice to get better with estimation.

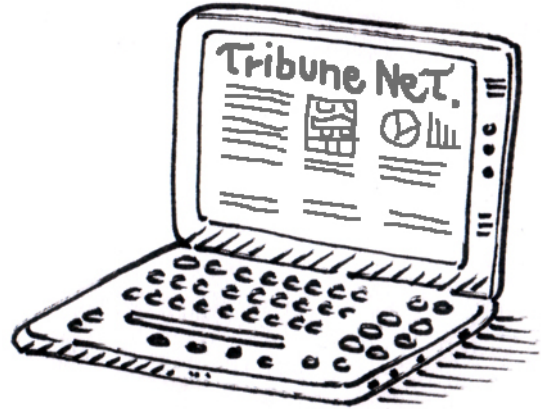
You can help your child at home in the following ways:

Large Numbers on Display. Ask your child about the Newswire display in the classroom. Help your child find articles in the newspaper or on the internet that include large numbers. Practice reading these numbers with your child. He or she can take these numbers to school to add to the Newswire.

Doubling Problem. Ask your child to describe the problem that involves grains of wheat in Lesson 3. This is a classic problem and offers students the opportunity to analyze relationships in a pattern. Find related or similar stories at the library.

Mystery Jars in the World. In class, students will estimate the quantity of items in Mystery Jars using a reference number of items. Provide similar opportunities for your child with authentic contexts. If you travel, estimate the number of miles you will travel or the amount of time your trip will take. If you attend a ball game or concert, estimate the number of people attending.

Play Draw, Place, Read. One player is the caller and draws seven cards from a set of Digit Cards 0–9. After each draw, players place the digit on a Place Value Chart. Once placed, a digit cannot be moved. The player that makes and reads the largest number wins that round. Directions are in the *Student Activity Book*.



5 1 0 9 2

3 8

Largest Number

Millions Period			Thousands Period				Ones Period		
		8	9	5	3	2	0	1	

Math Facts and Mental Math

This unit concludes the systematic review and assessment of the multiplication facts and begins the review and assessment of the division facts.

Multiplication Facts. Students review all the multiplication facts to maintain and increase fluency and to learn to apply multiplication strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night and focus on only those facts your child needs to learn. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For the Facts I Need to Learn, work on strategies for figuring them out. If there are many multiplication facts that they still need to learn, divide them into smaller groups of facts. Choose groups of facts that lend themselves to the use of the same strategy and focus on one group at a time.

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s. You can also help your child extend and deepen their understanding by asking them to choose a multiplication fact that was difficult to learn and describe the strategies they used for learning the fact.

Division Facts. Students review the division facts for 5s and 10s to maintain and increase fluency and to learn to apply multiplication and division strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For the Facts I Need to Learn, work on strategies for figuring them out. Good strategies include:

Skip counting. To solve $40 \div 5$, skip count: 5, 10, 15, 20, 25, 30, 35, 40 and count the skips. It took 8 skips to land on 40. $40 \div 5 = 8$.

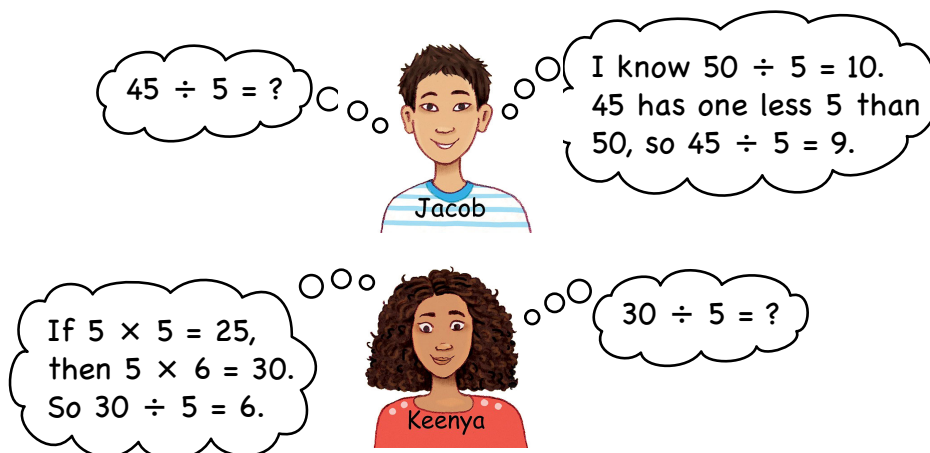
Reasoning from known facts. To solve $40 \div 5$: $20 \div 5$ is 4, so $40 \div 5$ is double 4. $40 \div 5 = 8$.

Turn-around facts. $80 \div 10 = 8$ because I know $10 \times 8 = 80$.

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s:

$600 \div 10 = 60$; $350 \div 5 = 70$; $10,000 \div 5000 = 2$

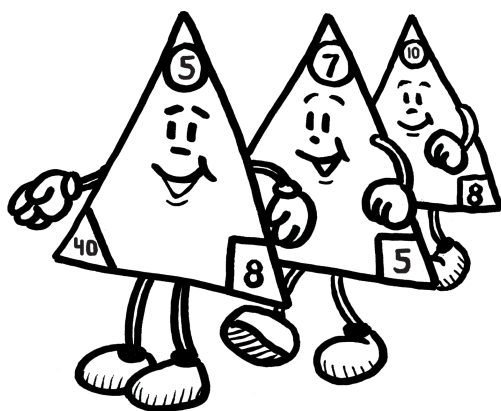


Grade 4 Math Facts Overview

The goal of the math facts development in *Math Trailblazers* is for students to learn the basic facts efficiently, gain fluency with their use, and retain that fluency over time. A large body of research supports an approach in which students develop strategies for figuring out the facts rather than relying on rote memorization. This not only leads to more effective learning and better retention, but also to the development of mental math skills. In fact, too much drill before conceptual understanding may interfere with a child's ability to understand concepts at a later date. Therefore, the teaching of the basic facts in *Math Trailblazers* is characterized by the following elements:

Use of Strategies. Students first approach the basic facts as problems to be solved rather than as facts to be memorized. In all grades, students are encouraged to use strategies to find facts, so they become confident that they can find answers to fact problems that they do not immediately recall. In this way, students learn that math is more than memorizing facts and rules which “you either get or you don't.”

Distributed Facts Practice. Students study small groups of facts that can be found using similar strategies. In fourth grade, they review division facts (fact families) to maintain or gain fluency starting in Unit 6. See Figure 1.



Unit	Division Facts Group
6	5s and 10s
7	2s and 3s
8	9s
9	Square Numbers
10	Last Six Facts
11	Last Six Facts
10	Review all division facts

Figure 1: Development of division facts in Grade 4

Practice in Context. Students continue to practice the facts as they use them to solve problems, investigate math concepts, and play math games.

Appropriate Assessment. Students are regularly assessed to see if they can find answers to facts problems quickly and accurately and retain this skill over time. They take a short quiz on each group of facts. Students record their progress on *Facts I Know* charts and determine which facts they need to study.

A Multiyear Approach. In Grades 1 and 2, the curriculum emphasizes the use of strategies that enable students to develop proficient strategies for the addition and subtraction facts by the end of second grade. In Grade 3, students review the subtraction facts and develop proficiency with the multiplication facts. In Grade 4, the addition and subtraction facts are checked, the multiplication facts are reviewed, and students develop fluency with the division facts. In Grade 5, students review the multiplication and division facts.

Facts Will Not Act as Gatekeepers. Use of strategies and calculators allows students to continue to work on interesting problems and experiments while learning the facts. They are not prevented from learning more complex mathematics because they do not have quick recall of the facts.

Thank you for taking time to talk with your child about what he or she is doing in math.

Sincerely,

Unit 6: Home Practice

Part 1 Triangle Flash Cards: 5s and 10s

Study for the quiz on the division facts for the 5s and 10s. Take home your Triangle Flash Cards: 5s and 10s and the list of facts you need to study.

Ask a family member to choose one flash card at a time. He or she should cover the number in the square. Solve a division fact with the two uncovered numbers. Ask your family member to go through the cards again, this time covering the number in the circle.

Your teacher will tell you when the quiz on the 5s and 10s will be.

Part 2 Mixed-Up Multiplication Tables

1. Complete the table. Then describe any patterns you see.

\times	2	3	5	9	10	20
4						
6						
7						
8						

2. n stands for a missing number. Find the missing number in each number sentence. Use the table.

A. $n \times 7 = 14$ B. $3 \times n = 24$ C. $n \times 4 = 24$ D. $n \times 8 = 80$

E. $9 \times n = 63$ F. $n \times 8 = 72$ G. $4 \times n = 36$ H. $n \times 5 = 30$

Part 3 Multiplication and Division Practice

Use paper and pencil or mental math to solve the following problems. If you need more work space to show your work, you may use a separate sheet of paper. Use the *Multiplication Strategies Menu* in the Reference section of your *Student Guide* to help you. Estimate to make sure your answers are reasonable.

1. **A.** $78 \times 2 =$ **B.** $34 \times 9 =$ **C.** $47 \times 5 =$ **D.** $43 \times 8 =$

E. $24 \times 3 =$ **F.** $67 \times 5 =$ **G.** $42 \times 9 =$ **H.** $56 \times 5 =$

I. $82 \times 4 =$ **J.** $13 \times 7 =$ **K.** $33 \times 6 =$ **L.** $65 \times 5 =$

2. **A.** Choose a problem and show or tell how you can use mental math to solve it.

B. Explain how you know your answer to Question 1A is reasonable.

3. **A.** $80 \div 8 =$ **B.** $45 \div 5 =$ **C.** $60 \div 10 =$ **D.** $70 \div 7 =$

E. $40 \div 10 =$ **F.** $25 \div 1 =$ **G.** $35 \div 5 =$ **H.** $30 \div 10 =$

I. $15 \div 5 =$ **J.** $20 \div 10 =$ **K.** $0 \div 5 =$ **L.** $50 \div 10 =$

Part 4 Numbers in the News

Keenya and Nicholas found the following numbers in the newspaper. Write the numbers in order from smallest to largest in the following place value chart. Use the *Writing Numbers in Words* page in the *Student Guide Reference* section.

4,130,243 7,931,435 39,905 793,027
 4,613,378 9835 42,319

Millions			Thousands			Ones		

Write the smallest number in words.

Write the largest number in words.

Part 5 Subtraction Count Backs

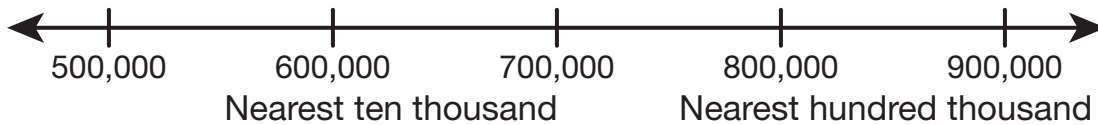
Do these problems in your head. Write only the answers. Work across the rows.

- | | |
|-------------------------|-------------------------|
| A. $11 - 2 =$ _____ | B. $31 - 2 =$ _____ |
| C. $110 - 20 =$ _____ | D. $310 - 20 =$ _____ |
| E. $27 - 3 =$ _____ | F. $7 - 3 =$ _____ |
| G. $2700 - 300 =$ _____ | H. $70 - 30 =$ _____ |
| I. $12 - 3 =$ _____ | J. $52 - 3 =$ _____ |
| K. $120 - 30 =$ _____ | L. $5200 - 300 =$ _____ |

Describe any patterns you see.

Part 6 Convenient Numbers

Estimate where each of the numbers (A–D) is located on the following number line. Make a mark on the number line to show each number. Label each mark with the correct letter A, B, C, or D. Then use the number line to round each number to the nearest ten thousand and nearest hundred thousand.



- | | | |
|------------|-------|-------|
| A. 650,780 | _____ | _____ |
| B. 870,002 | _____ | _____ |
| C. 720,000 | _____ | _____ |
| D. 509,237 | _____ | _____ |

Part 7 Using Estimation

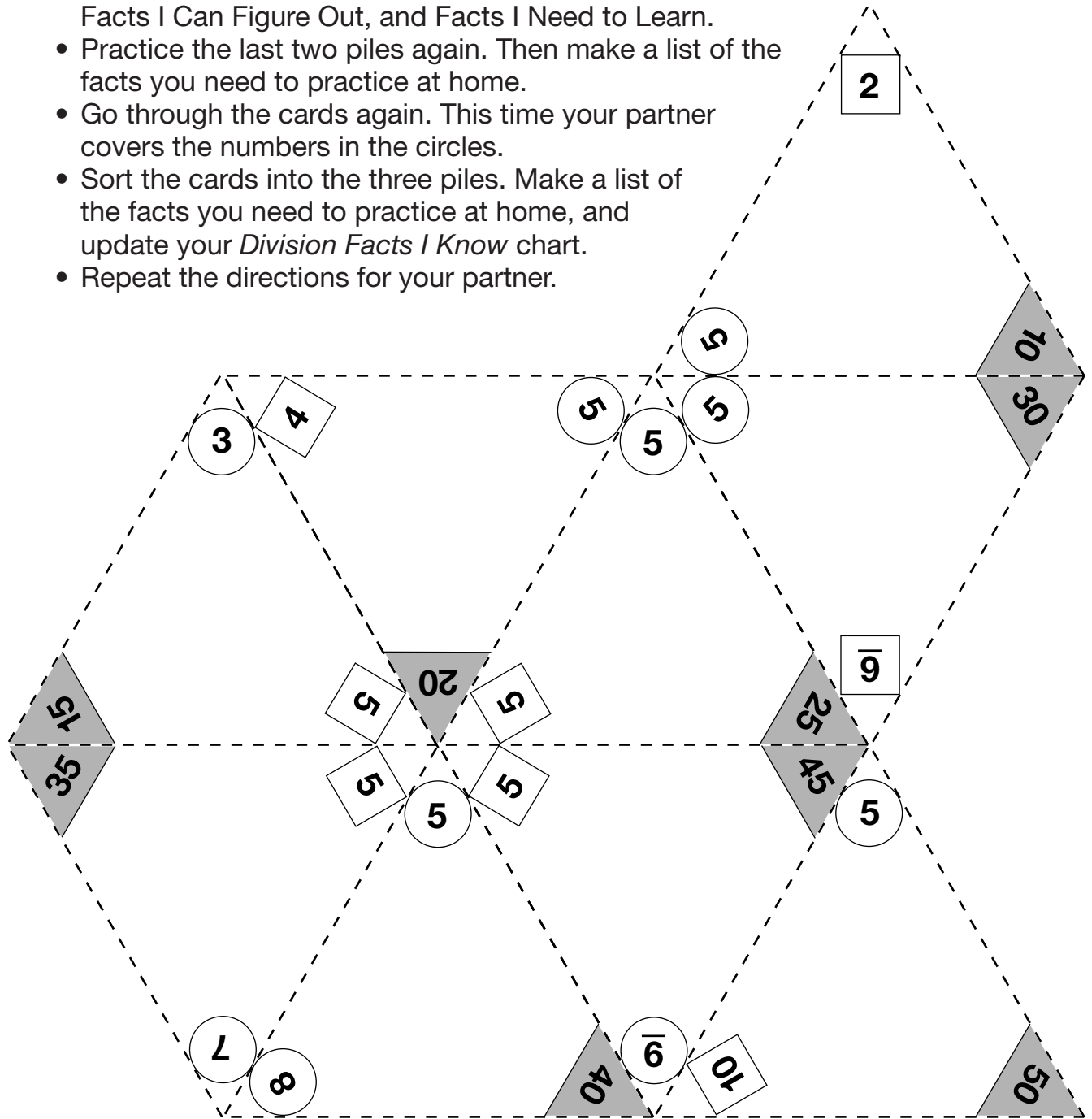
The following table lists the number of people who immigrated to the United States from various countries in 2000. Use the information in the table to estimate the answers to the questions below. Use a separate sheet of paper to show what convenient numbers you chose to work with.

Country	Number of Immigrants	Country	Number of Immigrants
Canada	21,475	Mexico	171,748
China	41,861	Philippines	40,587
Dominican Republic	17,441	Romania	6,521
El Salvador	22,332	United Kingdom	14,532
India	39,072	Vietnam	25,340

1. Most immigrants came from which five countries listed in the table? List the countries and their population. List the populations in order from largest to smallest.
2. About how many more people immigrated from Mexico than from China?
3. About how many people immigrated from Canada and Mexico combined?
4. The number of immigrants from El Salvador is about the same as the number from which other country?
5. About how many more people came from India than Romania?
6. In 2000, the number of immigrants from all countries totaled about 850,000 people. About how many immigrants are reported in the table above?
(*Hint:* Use a calculator to help you with your estimation.)

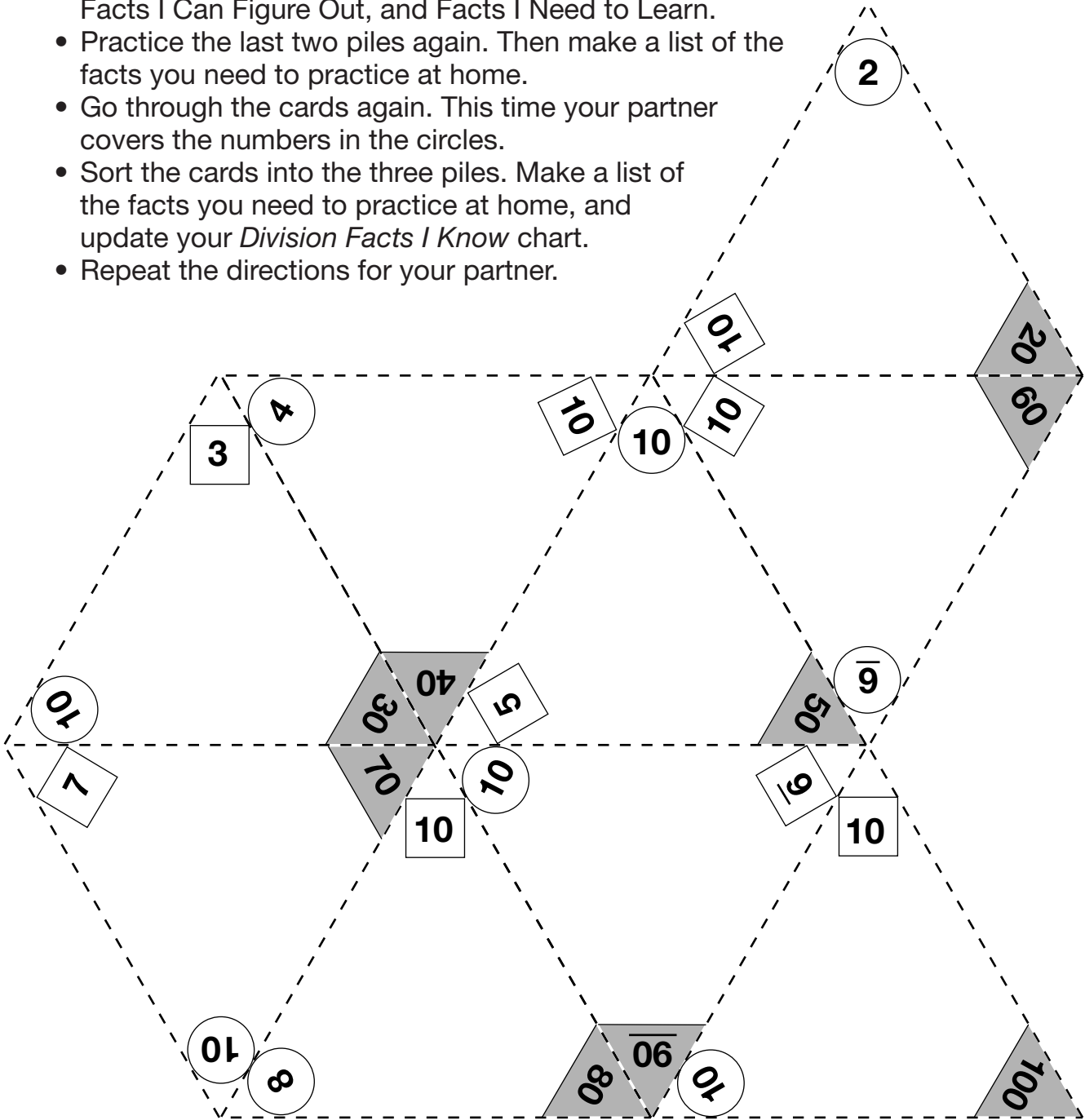
Triangle Flash Cards: 5s

- Work with a partner. Each partner cuts out the flash cards.
- To quiz you on a division fact, your partner covers the number in the square. This number is a divisor. Solve a division fact with the two uncovered numbers.
- Divide the used cards into three piles: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.
- Practice the last two piles again. Then make a list of the facts you need to practice at home.
- Go through the cards again. This time your partner covers the numbers in the circles.
- Sort the cards into the three piles. Make a list of the facts you need to practice at home, and update your *Division Facts I Know* chart.
- Repeat the directions for your partner.



Triangle Flash Cards: 10s

- Work with a partner. Each partner cuts out the flash cards.
- To quiz you on a division fact, your partner covers the number in the square. This number is a divisor. Solve a division fact with the two uncovered numbers.
- Divide the used cards into three piles: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.
- Practice the last two piles again. Then make a list of the facts you need to practice at home.
- Go through the cards again. This time your partner covers the numbers in the circles.
- Sort the cards into the three piles. Make a list of the facts you need to practice at home, and update your *Division Facts I Know* chart.
- Repeat the directions for your partner.



Multiplication Facts I Know

- Circle the facts you know well.
- Keep this table and use it to help you multiply.
- As you learn more facts, you may circle them too.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Big Number Search

Use these questions to help you find big numbers. Find numbers larger than 1000 and less than 1 billion. Print the article containing the big number or copy the number and include its label. Write your number on your *Place Value Chart* and follow your teacher's direction to add it to the *News Number Line*.

1. How many people live in your neighborhood or town?
2. How many people live in your county?
3. How many people live in your state?
4. What is the population of the state with the fewest people?
5. What is the population of the state with the most people?
6. Choose an arena or ballpark. How many seats are in the arena or ballpark?
7. Find the number of seats in an arena or ballpark that seats fewer people.
8. Find the number of seats in an arena or ballpark that seats more people.
9. How tall is the tallest building in the world?
10. How tall is the second-tallest building in the world?
11. How high is the highest mountain peak in the world?
12. How high is the highest mountain peak in North America?
13. How much does it cost to buy a house in your neighborhood or town?
14. Choose a job. What is the advertised salary for that job?
15. Find the salary for a job with a higher salary.
16. Find the salary for a job with a lower salary.
17. What is the salary of the President of the United States?
18. What is the salary of the Vice-President of the United States?
19. Choose a famous river. How long is it in miles? How long is it in kilometers?
20. How far is the Moon from the Earth?

Resources for *Big Number Search*

The Population Reference Bureau (<http://www.prb.org>) includes a data finder that informs people around the world about population, health, and the environment, and empowers them to use that information to advance the well-being of current and future generations.

The United States Census Bureau (<http://www.census.gov/index/html>) serves as the leading source of quality data about the nation's people and economy.

The American Fact Finder database can be accessed through the United States Census Bureau. This is an additional source for quality data about our nation.

Information Please (www.infoplease.com) has been providing authoritative answers to all kinds of factual questions since 1938—first as a popular radio quiz show, then starting in 1947 as an annual almanac, and since 1998 as a web-based publication.

Worldometers is part of the Real Time Statistics Project, which is run by an international team of developers, researchers, and volunteers with the goal of making world statistics available in a thought-provoking and time relevant format to a wide audience around the world. (<http://www.worldometers.info/>)

World Almanac

Encyclopedia

Newspapers

News Magazines

Big Number News

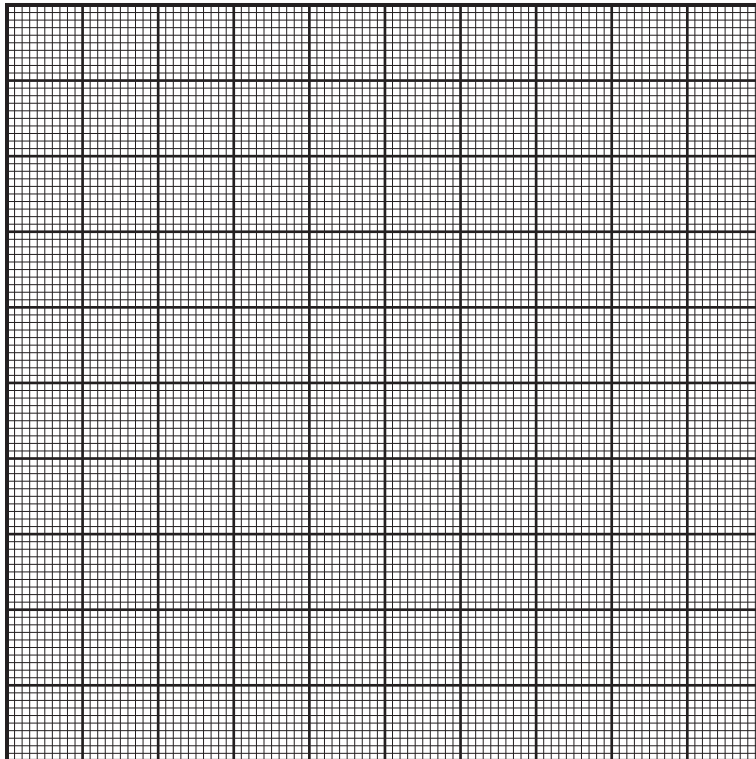
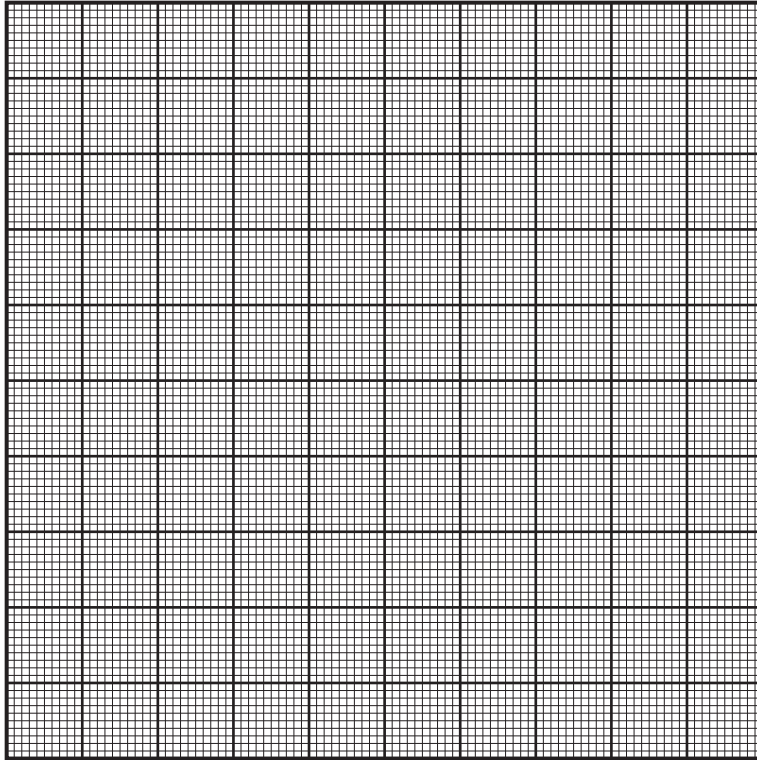
512,511 new cars were sold in the U.S. during the month of November, 1989.	2,490,570 new cars were built in Italy in 2007.	Mayor Johnson bought a new Cadillac sedan for \$49,775.
At Office Systems, Inc., 12,863 documents and over 441,799 pages were scanned into the new electronic records system.	Smithtown Village sent out 82,428 water bills and 80,453 garbage and recycling bills.	Senator Vader won reelection to his senate seat. He received 1,220,873 votes and his opponent Jamie Goodfellow received 905,645 votes.
The town of Flax Corners earned \$810,049 from parking meters in its downtown district.	The largest crowd to watch a college baseball game was 40,106. They watched San Diego State beat the University of Houston, 4-0.	In Italy new car sales fell to 138,352 cars in November.
Village Police Department reports that police officers logged over 8740 hours of residential patrol in 2002.	Two luxury homes with a view of the ocean sold for \$4,535,680 and \$6,595,000.	The Department of Public Works pumped over 460,000,000 gallons of water and read water meters 82,428 times.
The New Fairgrounds site will feature 184,000 sq. ft. of fair facilities.	Village investment in Downtown Improvements over the past 5 years is \$267,639.	2007 Revenue: \$9,609,196 2007 Expenses: \$6,290,414
In 2003 State University brought \$20,387,798 in outside dollars to the campus, an increase from the total \$18,084,449 the previous year.	The State University Internal Grants program reached near-record numbers in 2007-08 and awarded \$289,677 to support 168 projects.	At Mega Community College, the Internal Grants program was able to support 9 projects totaling \$40,524.

Mrs. Happadapalous earned royalties for her best-selling autobiography: \$83,003 in 2006 and \$214,926 in 2007.	Academic College received state funding of \$22,486,805 in 2007 and \$14,888,235 in 2008.	105,552,948 shares of General Electric stock were traded this morning on the New York Stock Exchange.
Micksdup University received \$8,241,998 from the Federal government; \$5,140,713 from the State government; \$2,552,807 from business donations; and \$2,466,003 from private foundations.	Teachers State College received \$688,608 from the Federal government; \$3,609,919 from the State government; \$84,500 from business donations; and \$1,517,285 from private foundations.	A dinoflagellate is a kind of plankton, which is a tiny sea animal. If you lined up dinoflagellates side by side you could fit 1,828,800 down the side of a football field.
Village Operation Budget for 2007–08 Revenue: \$14,851,135 Expenditures: \$14,785,124	Australia is the smallest continent. It is 2,968,000 square miles.	The new Busch Stadium in St. Louis seats about 46,000 fans; estimated cost was about \$387,500,000.
The new home for the Arizona Cardinals and the Fiesta Bowl will seat about 63,000 total. It will have 88 luxury suites and 7000 club seats. The estimated cost was \$370,600,000.	Asia is the world's largest continent and has an area of 17,139,000 square miles.	Mt. Everest (29,035 ft.), in Nepal, is the world's highest peak. The Dead Sea (1,312 ft. below sea level) is the world's lowest point.
The Pacific Ocean is the world's largest and deepest ocean. The area is about 60,060,700 sq. mi., and at its deepest place, the Challenger Deep in the Marianas trench, is 36,198 ft.	Greenland is the world's largest island. Its area is 839,999 square miles.	Great Britain is an island, and its area is 229,979 square kilometers.
An estimated 23,000 orangutans live in the wild. Another 900 live in captivity.	Japan is a country made up of many islands. The largest is Honshu, which has an area of 89,176 square miles.	There are fewer than 100,000 koalas left in the world. They live in the wild only in Australia.
A koala can expect to sleep about 99,280 hours total during its entire life.	An adult male polar bear can weigh as much as 1700 pounds. That is the same as 27,200 ounces.	There are about 600,000 African elephants in the world today. An elephant eats about 350 pounds of food in one day. That is the same as 127,750 pounds of food in one year.

Name _____

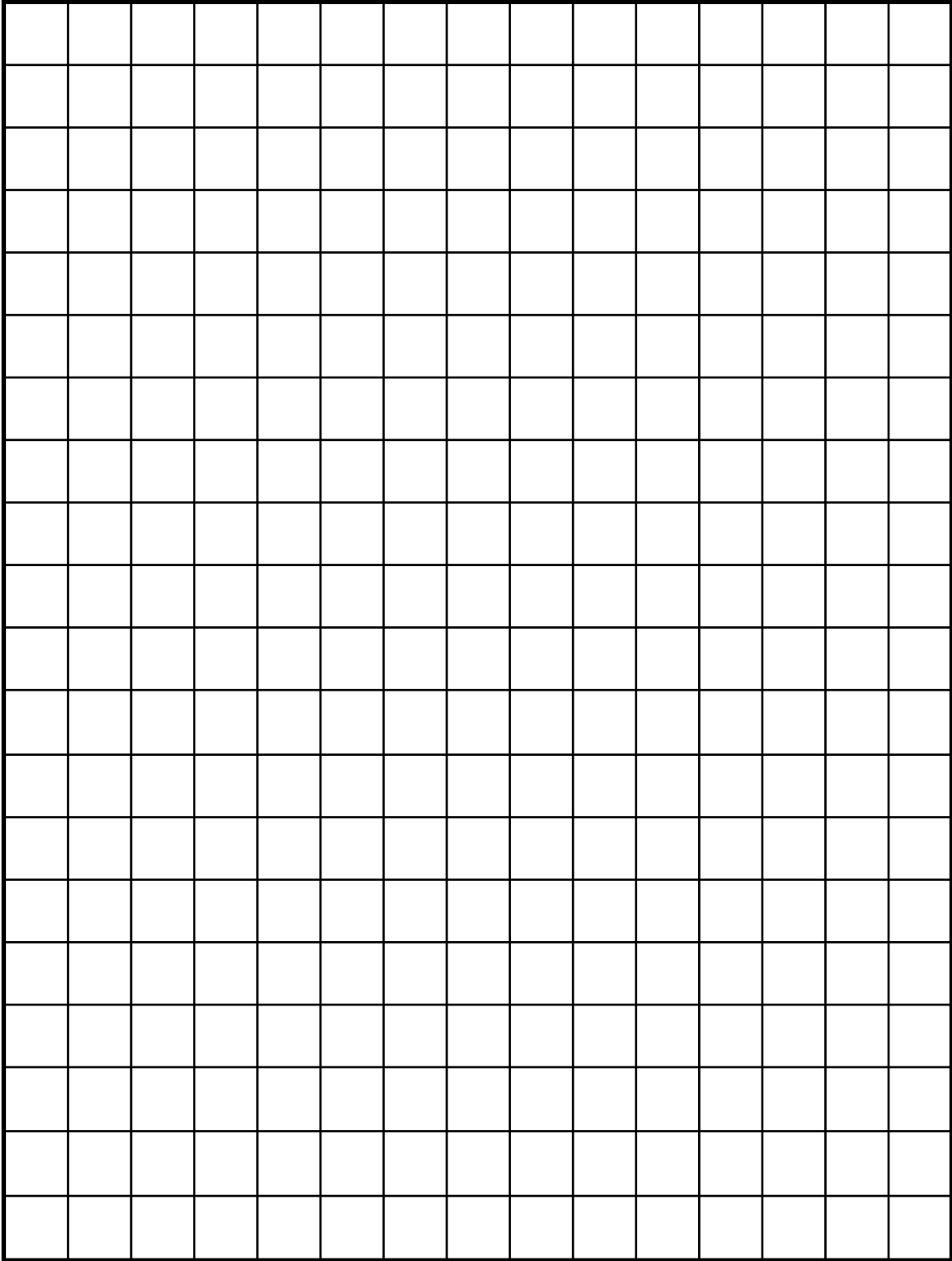
Date _____

Two 10,000 Sq mm Grids



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Name _____ Date _____

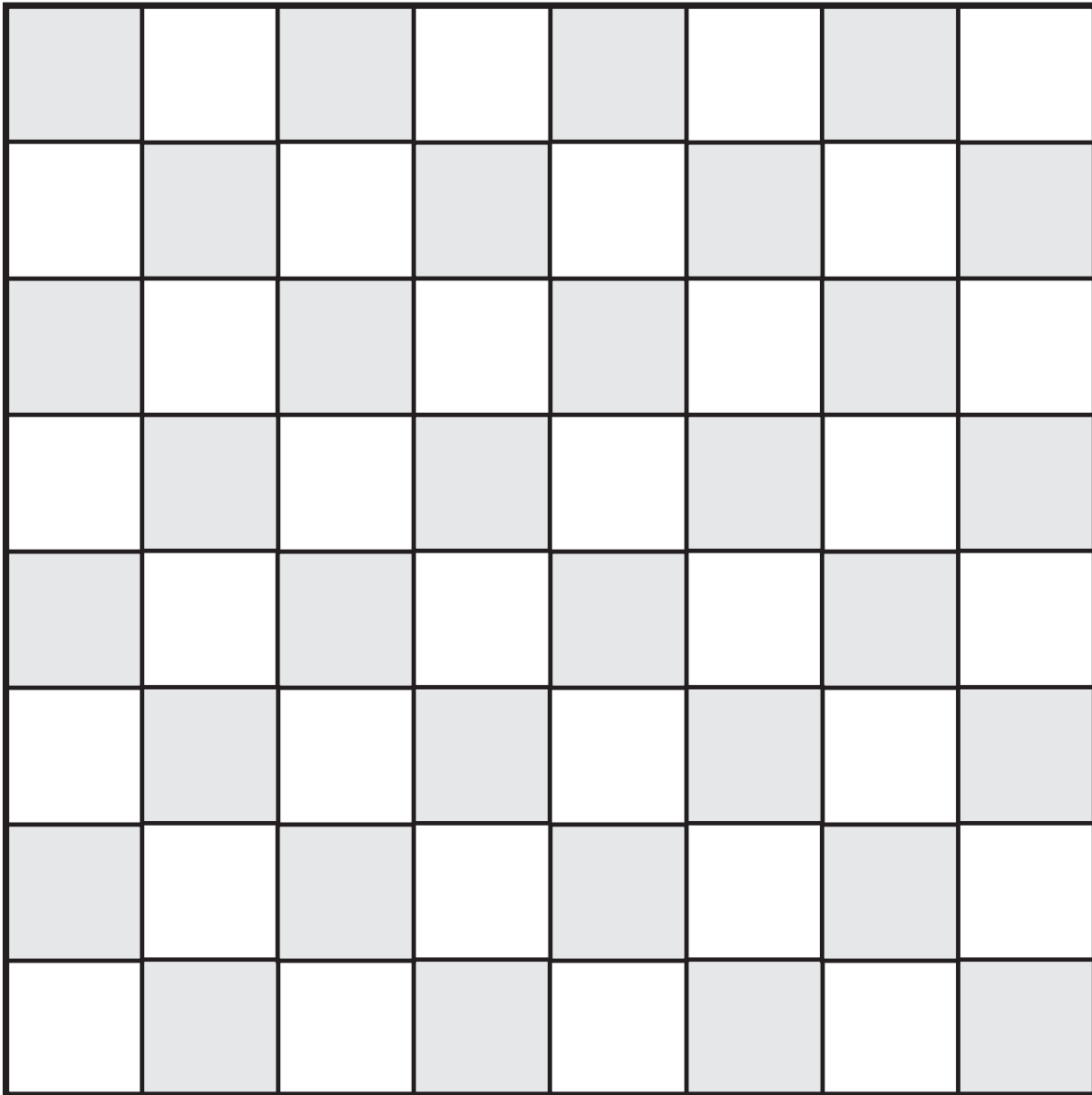


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Name _____

Date _____

Chessboard



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John's Problem

John walked his neighbor's dog for the ten days the neighbor was out of town. His neighbor asked him to choose how he would get paid. Which payment plan should John choose? Why?

Plan #1: Get \$1 per day.

Plan #2: Get 1 penny on the first day, two pennies the second day, four pennies the third day, eight pennies on the fourth day, etc.

Show or tell how you decided.

Name _____ Date _____

John's Problem Feedback Box

Student to Student	Yes ...	Yes, but ...	No, but ...	No ...
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what numbers mean.				

Teacher to Student	Yes ...	Yes, but ...	No, but ...	No ...
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what numbers mean.				

Place Value Chart II

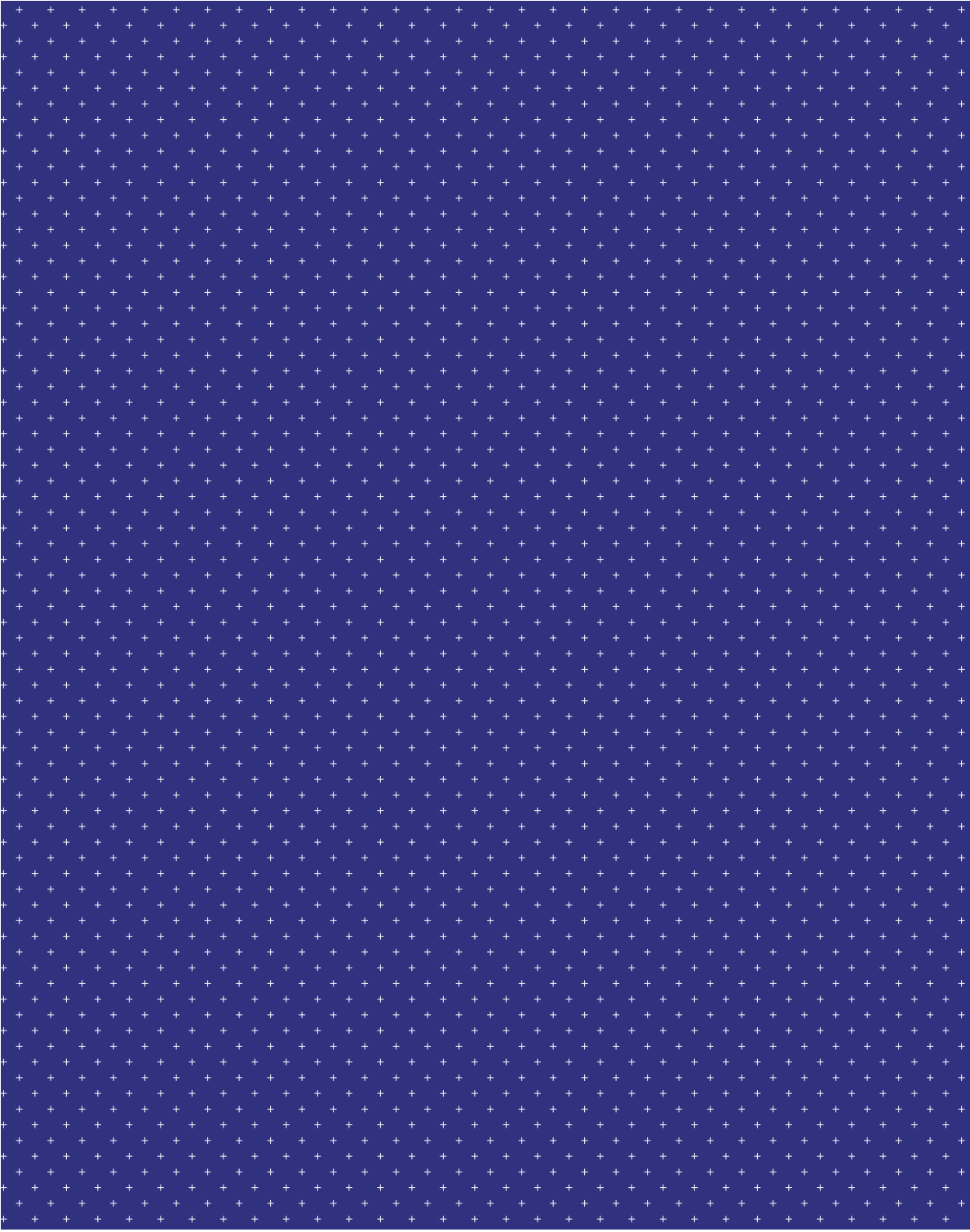
Millions			Thousands			Ones		

Big Base-Ten Pieces Recording Sheet

Megabit Millions 1,000,000s	Super Flat Hundred- thousands 100,000s	Super Skinny Ten- thousands 10,000s	Super Bit (Pack) Thousands 1000s	Flat Hundreds 100s	Skinny Tens 10s	Bit Ones 1s	Number Sentence

Digit Cards 0-9

4	9
3	8
2	7
1	6
0	5



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Name _____ Date _____

Using Benchmarks

Pretend you are writing to your friend. Use benchmark numbers to explain how to decide where 847,613 would be placed on a 0 to 1,000,000 number line.

Using Benchmarks Feedback Box

	Expectation	Check In	Comments
Represent large numbers (to the millions) on a number line.	E3		

	Yes ...	Yes, but ...	No, but ...	No ...
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				

Math Practices Notes

Solving a problem:

<p>1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important.</p>	<p>2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.</p>
<p>3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again.</p>	<p>4. Check my calculations. If I make mistakes, I correct them.</p>

Showing or telling how I solve a problem:

<p>5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.</p>	<p>6. Use labels. I use labels to show what numbers mean.</p>
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Using Estimation









Check-In: Q# 23 Feedback Box

	Yes ...	Yes, but ...	No, but ...	No ...
<p>MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important.</p>				
<p>MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again.</p>				
<p>MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.</p>				
<p>MPE6. Use labels. I use labels to show what numbers mean.</p>				

Big Numbers Quiz

- I. This chart shows the total attendance in one season for eight professional sports teams in Chicago.

Sports Teams' Attendance for One Season

Team	Attendance for the Season
Bears 	496,276
Cubs 	3,168,859
White Sox 	2,284,164
Sky 	66,852
Bulls 	847,903
Blackhawks 	912,155
Fire 	204,542
Bandits 	17,543

- A. Put the teams in order from the smallest attendance to the largest.
- B. Which number is closest to 100,000?
- C. Estimate the combined attendance for the Cubs and Bulls. Show or tell how you estimated. Include a number sentence.
- D. About how many more people attended White Sox games than Bears games?

2. Use patterns to complete the chart below.

1	1	1	one
10		10×1	
100	10^2		one hundred
1000	10^3	$10 \times 10 \times 10$	
10,000	10^4		ten thousand
100,000			
1,000,000			

3. A. Write the following number using words: 348,603.

B. Show how a base-ten hopper can move from 0 to 348,603 on a number line. Write a number sentence to match.



C. Round 348,603 to the nearest 10,000.









D. Round 348,603 to the nearest 50,000.

4. It was reported that 1,688,489 people visited a state park in 2000. In 2001, 1,719,107 people visited. Estimate the total number of people who visited during these two years. Show or tell how you made your estimate. Include a number sentence.

**Big Numbers Quiz
Feedback Box**

	Expectation	Check In	Comments
Read and write large numbers (to the millions). [Q# 2, 3A]	E1		
Compare and order large numbers (to the millions). [Q# 1A]	E2		
Represent large numbers (to the millions) using number lines. [Q# 3B]	E3		
Round quantities to benchmark numbers. [Q# 1B, 3C, 3D]	E6		
Estimate sums and differences for large numbers. [Q# 1C, 1D, 4]	E9		

Stadiums, Teams, and Cities Table

Stadium	Team	Number of Seats	Location	Population of City
A. Estadio do Maracana	2016 Olympic Teams 	88,992	Rio de Janeiro, Brazil	16,140,000
B. Beijing National Stadium	2008 Olympic Teams 	91,000	Beijing, China	16,850,000
C. Beaver Stadium	Penn State Nittany Lions 	107,282	State College, PA	39,419
D. Kinnick Stadium	Iowa Hawkeyes 	70,585	Iowa City, IA	67,831
E. Memorial Stadium	Illinois Fighting Illini 	70,984	Champaign, IL	79,389
F. Michigan Stadium	Michigan Wolverines 	107,501	Ann Arbor, MI	114,386
G. Ohio Stadium	Ohio State Buckeyes 	102,329	Columbus, OH	754,885
H. U.S. Cellular Field	Chicago White Sox 	40,615	Chicago, IL	2,853,114
I. Wrigley Field	Chicago Cubs 	41,160	Chicago, IL	2,853,114
J. Yankee Stadium	New York Yankees 	52,325	New York, NY	8,363,710

Name _____

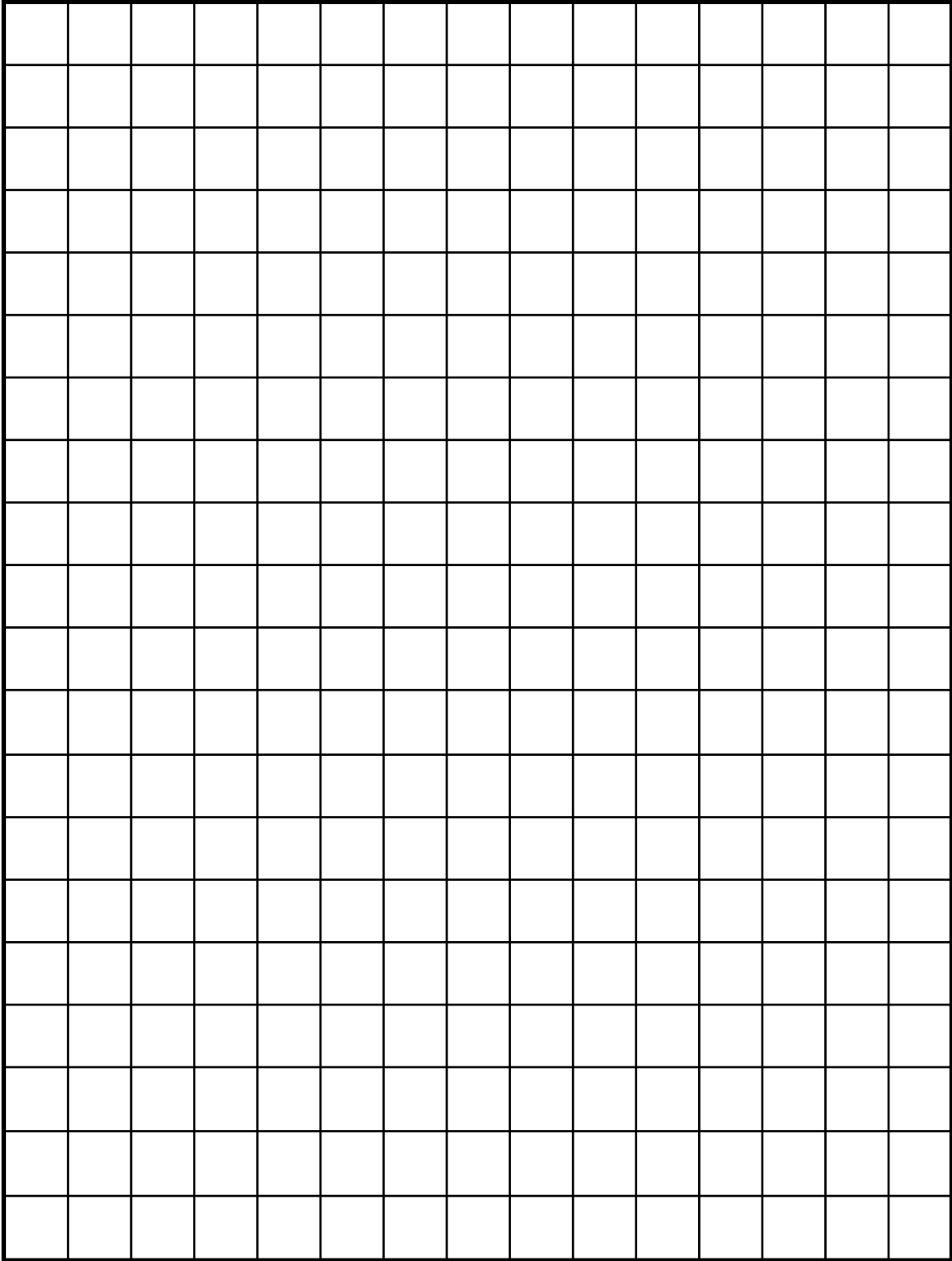
Date _____

Place Value Chart

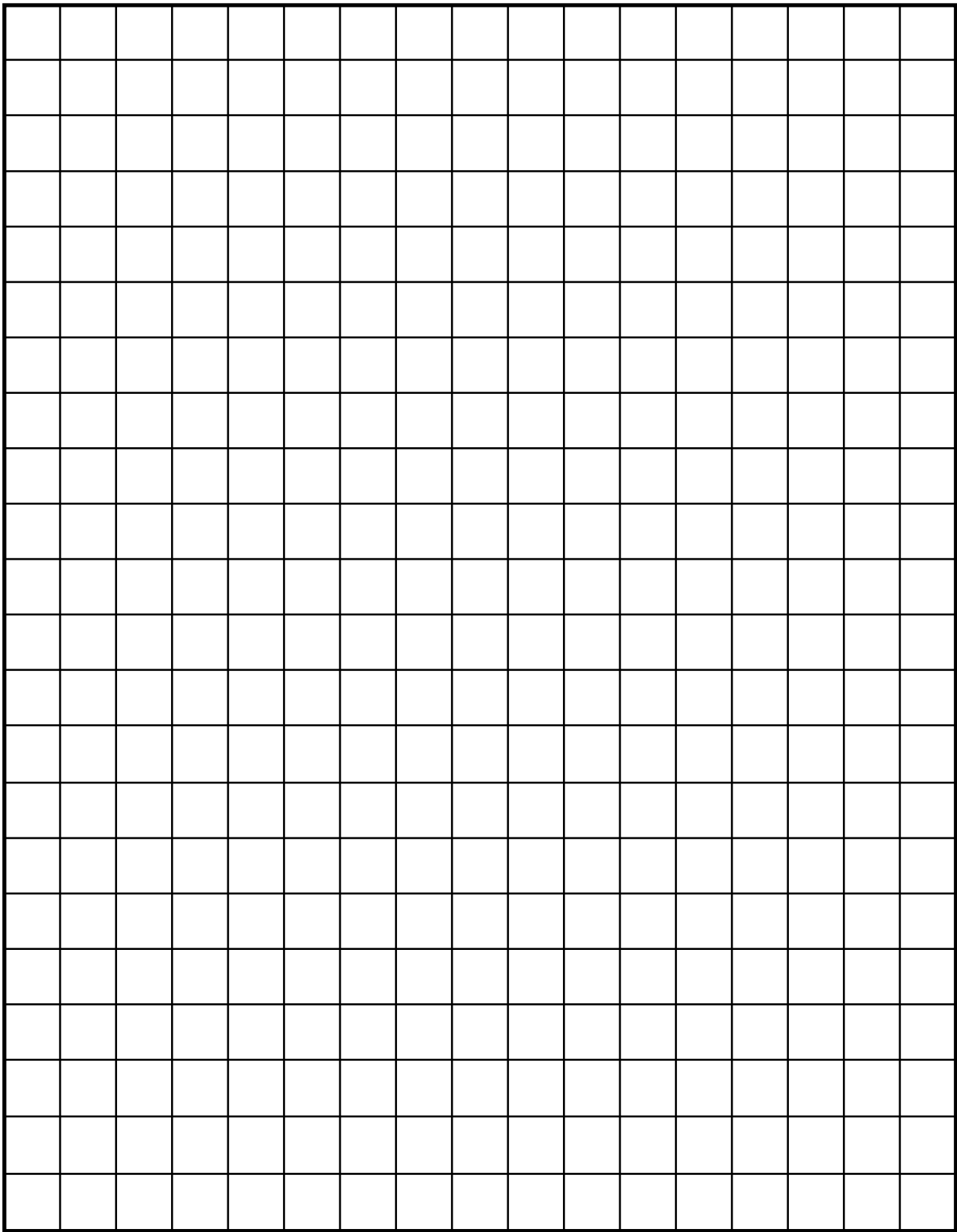
Millions			Thousands			Ones		

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Name _____ Date _____



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Midterm Test

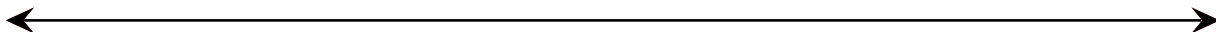
Part 1

For Part 1, do not use a calculator. You may refer to the *Writing Numbers in Word* page in the Reference section of your *Student Guide*.

- A.** The number of people who can attend a football game in the Rose Bowl is 92,542. Write this number in words.

B. What does the 9 represent in 92,542? _____
- A.** A soccer stadium in Barcelona, Spain seats 98,787 people. A soccer stadium in Mexico City, Mexico seats 105,000 people. Which stadium seats more people, the one in Spain or the one in Mexico?

B. Estimate the difference in the number of seats in the two stadiums. Show or tell how you made your estimate.
- A.** Show how a base-ten hopper can move from 126 to 398. Write a number sentence to match.

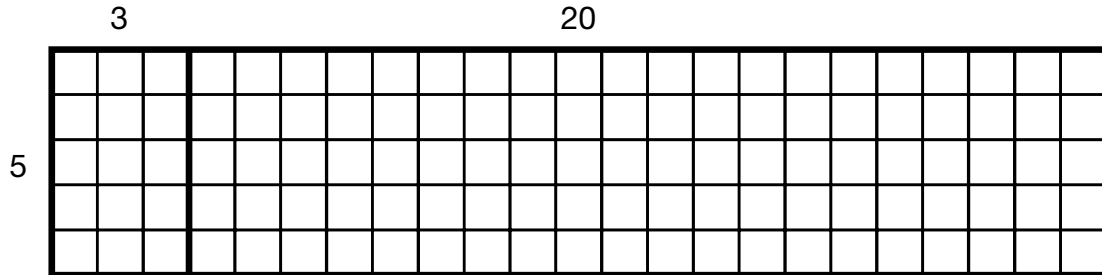


- B.** Show how a base-ten hopper can move from 1000 back to 874. Write a number sentence to match.



4. **A.** Grace drew the rectangle below and broke it into parts to help her find 5×23 using the break-apart method.

- Write number sentences on each part to show the number of squares in each.

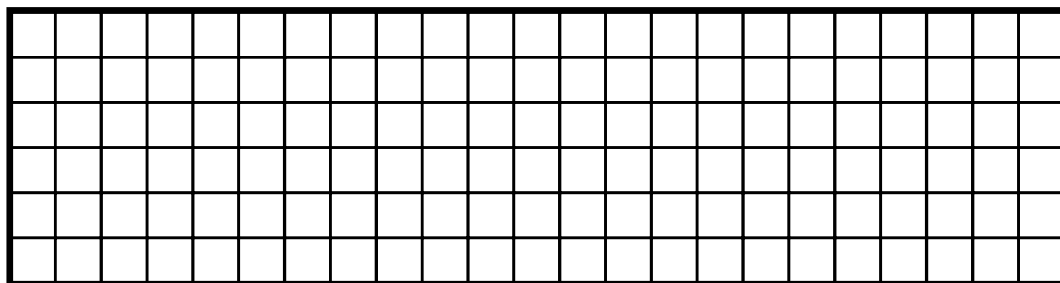


- Write a number sentence to show how to put the two parts together to get the total number of squares in the large rectangle.

Number Sentence: _____

B. Show another way to break the rectangle apart to solve 5×23 so that it is easy to multiply.

- Write number sentences on each part to show the number of squares in each.



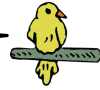
- Write a number sentence to show how to put the parts together to get the total number of squares in the large rectangle.

Number Sentence: _____

- Solve Questions 5–10 using paper and pencil or mental math. Estimate to be sure your answers are reasonable.
- Show how to solve two problems using mental math.
- You may use the *Addition, Subtraction, and Multiplication Strategies Menu* pages in the Reference section in your *Student Guide*.

5.
$$\begin{array}{r} 1816 \\ + 277 \\ \hline \end{array}$$

Which two problems will you choose to solve with mental math?



6. $3000 - 2897 =$

7.
$$\begin{array}{r} 2094 \\ - 269 \\ \hline \end{array}$$

8. $43 \times 5 =$

9.
$$\begin{array}{r} 28 \\ \times 7 \\ \hline \end{array}$$

10. Show how you know your answer to Question 5 is reasonable.

Part 2

For Questions 11–22, you may use any of the tools you have used in class. For example, you may use a ruler, calculator, or square-inch tiles.

- 11.** Jerome collected 34 red pencils and 29 blue pencils to donate to a school. Jerome and six of his friends each collected the same amount. How many pencils were donated? Show or tell how you solved the problem.
- 12.** Replace n with a number to make each number sentence true.
A. $900 + 70 + 4 = 800 + n + 4$ **B.** $1000 = 654 + 300 + 50 - n$
- 13.** Tom made a rectangle with 36 tiles. If there are 4 rows, how many tiles are in each row? Show how you found your answer.
- 14. A.** Is 4 a factor of 24? Show or tell how you know.
- B.** Is 4 a factor of 27? Show or tell how you know.

Name _____ Date _____

- 15.** Guess my number. I am a multiple of 3 and 5. I am between 10 and 40. I am an odd number. What number am I?

Show or tell how you solved the riddle. Use Math Practices Expectation 5.

	Yes ...	Yes, but ...	No, but ...	No ...
<p>MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.</p>				

- 16. A.** Is 27 a prime number? Show or tell how you know.
- B.** Is 29 is a prime number? Show or tell how you know.
- 17. A.** In the last five weeks, Frank read the following number of books each week: 5, 2, 6, 4, 3. Find the median number of books he read for the five weeks.
- B.** Find the mean number of books Frank read for the five weeks.
- 18. A.** In the last six weeks, Lee Yah read the following number of books each week: 1, 7, 7, 1, 1, 3. Find the median number of books she read for the six weeks.
- B.** Find the mean number of books Lee Yah read for the six weeks.
- 19.** Use the medians and means from Questions 17 and 18. Predict who will read more books next week, Lee Yah or Frank. Explain your thinking.

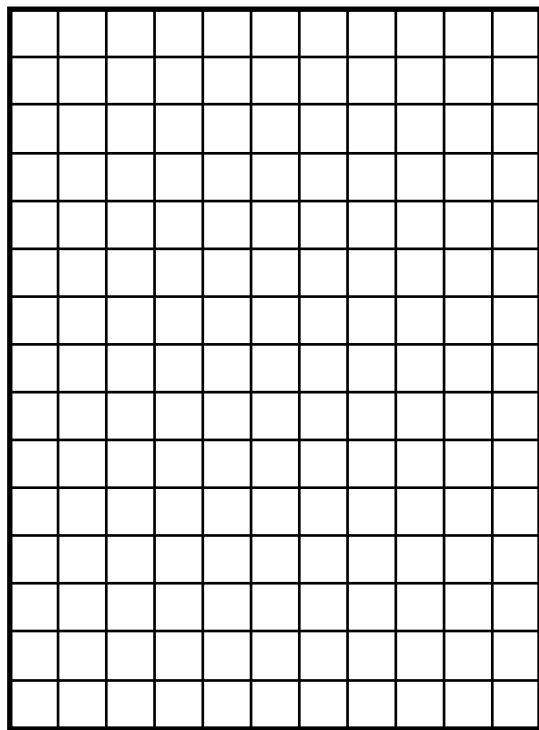
- 20. A.** Michael went for a day-long bike ride. He recorded the data in the table for the number of miles he rode. Fill in the table with the ordered pairs.
- B.** Make a point graph of the data. Choose a scale that will leave room to make predictions.
- C.** If the points lie close to a straight line, use a ruler to draw a best-fit line.

Bike Trip

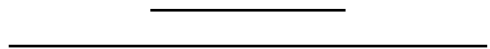
<i>T</i> Time in Hours	<i>D</i> Distance in Miles	Ordered Pairs (<i>T</i> , <i>D</i>)
1	7	(1, 7)
2	12	
4	26	

- 21.** Use the data table or graph in Question 20 to make the predictions below. Show your work on the graph or explain your thinking.

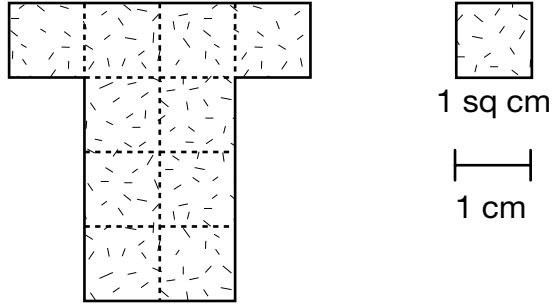
A. Predict the number of miles Michael rode in three hours.



B. Predict the number of miles he rode in five hours.

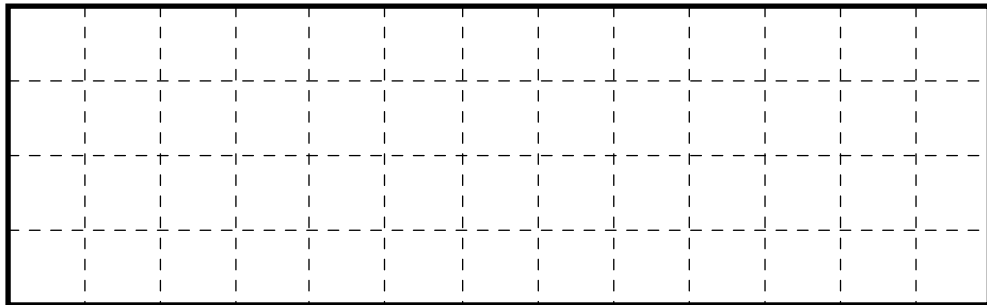


22. A. What is the area of the shape below? _____



B. What is the perimeter?

C. Draw another shape with the same area as the shape above, but with a greater perimeter.



What is the perimeter? _____