Calculate!

Would you rather have 37 quarters or 186 nickels?

Would you prefer an allowance of $450 a week or $20,000 a year?

(1.02a)

Thinking Mathematically

What is an estimate? Are estimates more than just guesses?

Give some examples of when estimates are useful and examples of when you need exact information.

(1.01d)

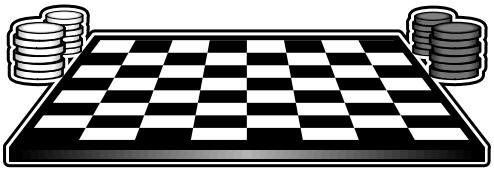
Exploring Data

Do people in N.C. move about more today than they did a generation ago? Before collecting data, make a prediction. To begin the investigation record the information from these two questions: Are you growing up in the same area (town) as your mother did? Did your mother grow up in the same area as her mother did?

Use the data (yes and no responses) to create a double bar graph.

(4.01)

Looking Out For Math

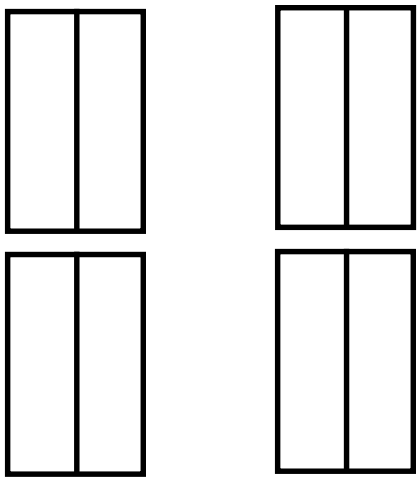


How many squares (of any size) are on a checkerboard?

(1.05)

Fraction Action

These regions have been divided into halves. Draw lines to divide the whole figure into other parts.



Complete:

$\frac{1}{2} = \frac{2}{4}$ $\frac{1}{2} = \frac{\square}{6}$ $\frac{1}{2} = \frac{\square}{10}$ $\frac{1}{2} = \frac{\square}{8}$

(1.03)

Multo Tic-Tac-Toe

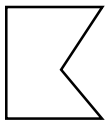
Materials: Gameboard, different colored markers
Number of Players: 2 players
Directions: This game is played like Tic-Tac-Toe. Each player takes turns calling out the multiplication fact and product for any of the 81 small spaces. If correct, the player puts his or hers in the space. If a player makes a mistake, then the other player wins that space. When a player gets three small spaces in a row, column, or diagonal, he or she wins the larger square. The winner is the first player who wins three LARGE squares in a row, column, or diagonal.

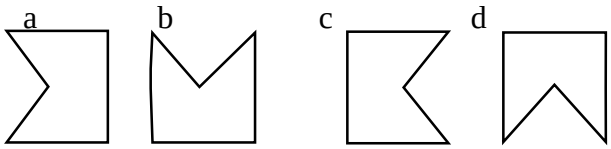
x	3	5	7	x	2	7	9	x	8	5	9	x	3	4	7
4				3				3				6			
3				6				4				8			
6				2				2				5			
x	4	0	8	x	1	6	9	x	4	2	6	x	9	4	6
6				9				8				2			
8				5				4				7			
7				8				9				3			
x	5	9	1	x	0	3	7	x	0	4	8	x	6	7	3
5				9				7				4			
9				1				2				8			
7				8				3				2			
x	7	3	8	x	2	9	4	x	0	4	8	x	5	9	4
6				6				4				4			
7				8				6				6			
4				3				5				7			

(Review multiplication facts)

Keeping Skills Sharp

1. 6703 + 2197 + 4506 =
2. 4,607 - J = 1,382
3. 50 x C = 350
4. 13 x 8 =
5. 0 x 6 =
6. Which figure is a translation (slide) of this figure:

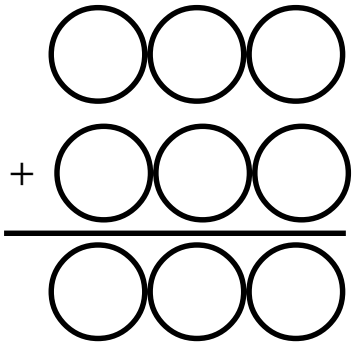




7. 1 mile = ____ feet
8. Put <, >, or = in the box:
   400 + 6,000 + 70 + 3 ☐ 300 + 6100 + 50 + 23
9. On the first bus to the museum, 63 people arrived. On the second bus, 54 people arrived. 19 people left before lunch. How many people were still at the museum at lunchtime?
10. Jill and Brent planned a visit to the coast. They stopped in Wilmington for 23 days, and in New Bern for 19 days. How many weeks did they stay at the coast?

Solve this!

Use the numbers 1, 2, 3, 4, 5, 6, 7, 8, and 9 one time each to fill in these circles and make a true equation. One solution is 237 + 654 = 891. There are over 300 solutions with 32 different sums. How many can you find?



(1.05 and review of whole number computation)

To the Teacher

Grade 4
WEEK 9

Calculate!

1) 37 x 25 = $9.25
186 x 5 = $9.30
186 nickels is more.

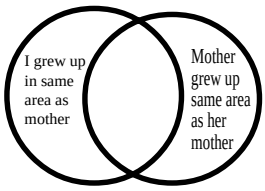
2) 450 x 52 = $23,400
$23,400 is more than $20,000

Thinking Mathematically

With the use of technology, it is even more important that students become better estimators through lots of experiences

Exploring Data

A Venn diagram might also be used to organize this date.



Game: Multo Tic-Tac-Toe

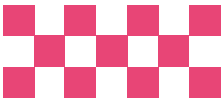
This is a write-on gameboard. Students play all over the board with the goal of winning three games in a row. Defensive as well as offensive strategies are needed.

Looking Out For Math

This problem builds on the strategies for the geoboard problem in Week 1.
Solution: 204 squares

1 x 1 squares:	64	(8 rows of 8 squares)
2 x 2 squares:	49	(7 rows of 7 squares, overlapping)
3 x 3 squares:	36	(6 x 6)
4 x 4 squares:	25	(5 x 5)
5 x 5 squares:	16	(4 x 4)
6 x 6 squares:	9	(3 x 3)
7 x 7 squares:	4	(2 x 2)
8 x 8 squares:	1	(whole board)
	204	

It may be helpful for students to use a "make a simpler problem" strategy and count squares on a smaller board such as:



Fraction Action

Solution:
1/2 = 2/4, 1/2 = 5/10, 1/2 = 3/6, 1/2 = 4/8

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

1. Add: 30 + 40 + 100
2. 12 ÷ 2 + 4 x 2
3, Total number of days in July and August
4. 100 - 4
5. 3 x 7
6. The value of a quarter, 3 dimes, and a nickel
7. Number of centimeters in a decimeter
8. Half of 28

Keeping Skills Sharp

1. 13,406
2. 3225
3. 7
4. 104
5. 0
6. c
7. 5280
8. =
9. 98
10. 6 weeks

Calculate!

How many fourth graders would it take to make a human chain around the world at the equator? The distance around the world at the equator is 40,000,000 meters. What might make this question have more than one solution?

(1.05)

Thinking Mathematically

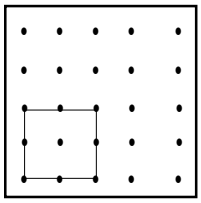
Jeb's new car has a three-digit license plate with his name on it: JEB _ _ _.
His favorite numbers are 2, 4, 8, and 9. How many different license plates (without repeats) can Jeb design for his new car?

(4.04)

Exploring Data

Design a survey for family members and other adults in your community to find out which occupations use no mathematics skills, which ones use mathematics skills some of the time, and which ones use mathematics skills every day. Which list do you think will be longest? Alone or with a group, create a graph or chart to show your results. (4.01)

Looking Out For Math



How many 2 x 2 squares can you make on a geoboard? How many 3 x 3 squares?

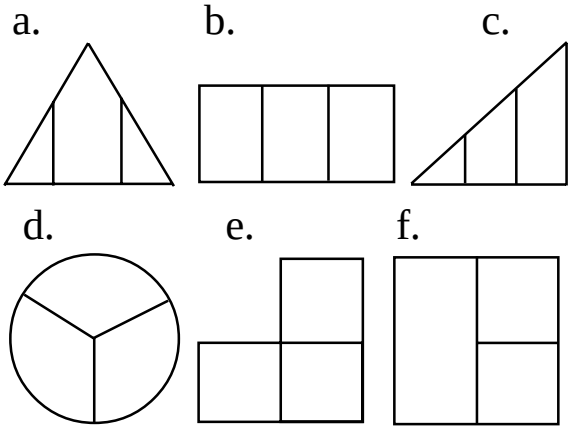
How many 4 x 4 squares? Do you see a pattern?

Record your solutions on a geoboard recording sheet.

(2.02, 3.03)

Fraction Action

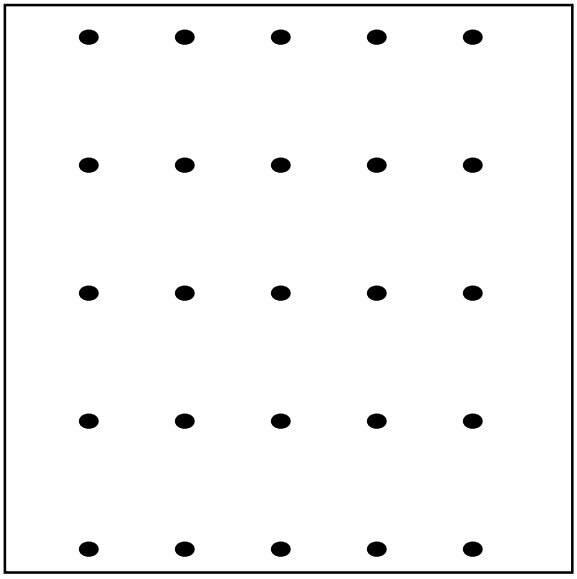
Color the regions which are divided into thirds.



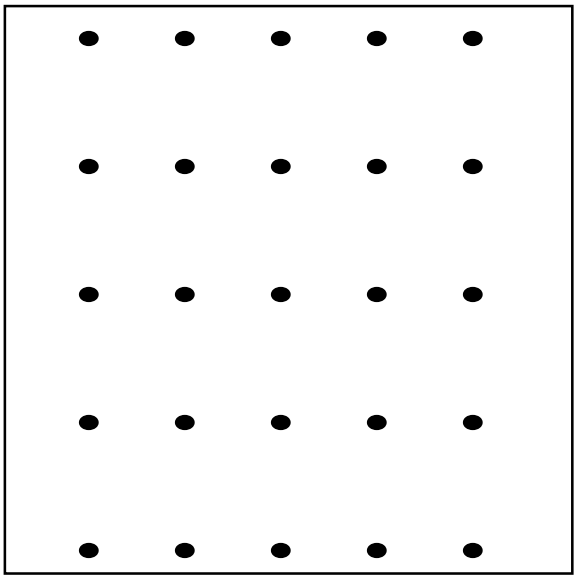
Choose a region which is not divided into thirds and tell why.

(1.03)

1.



2.



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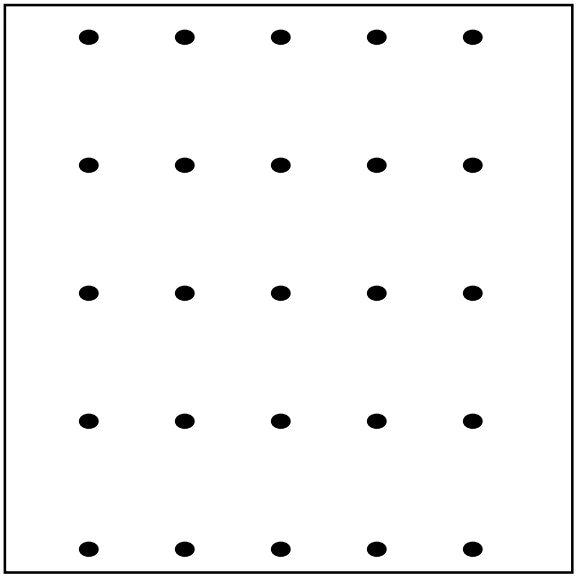

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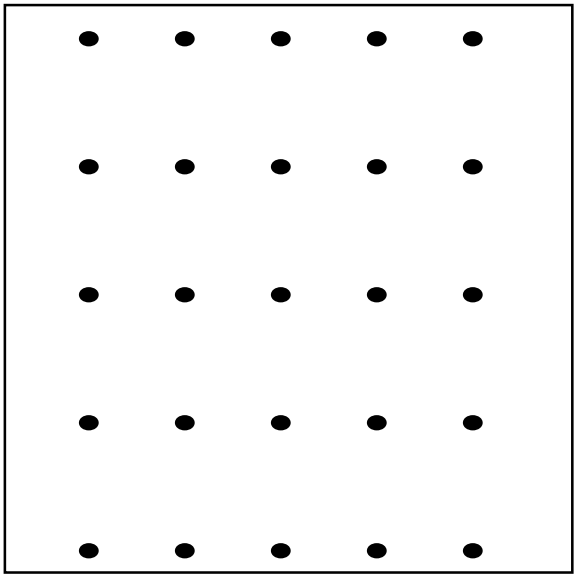

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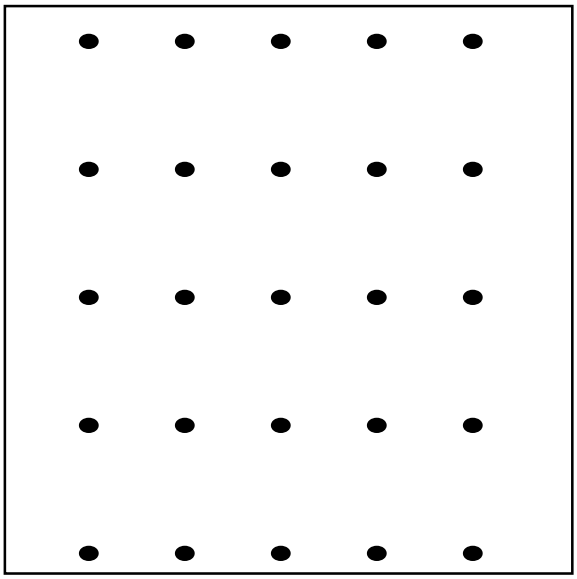
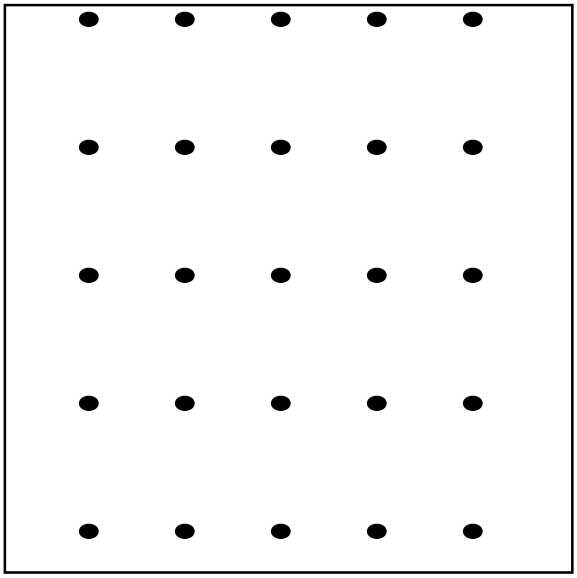
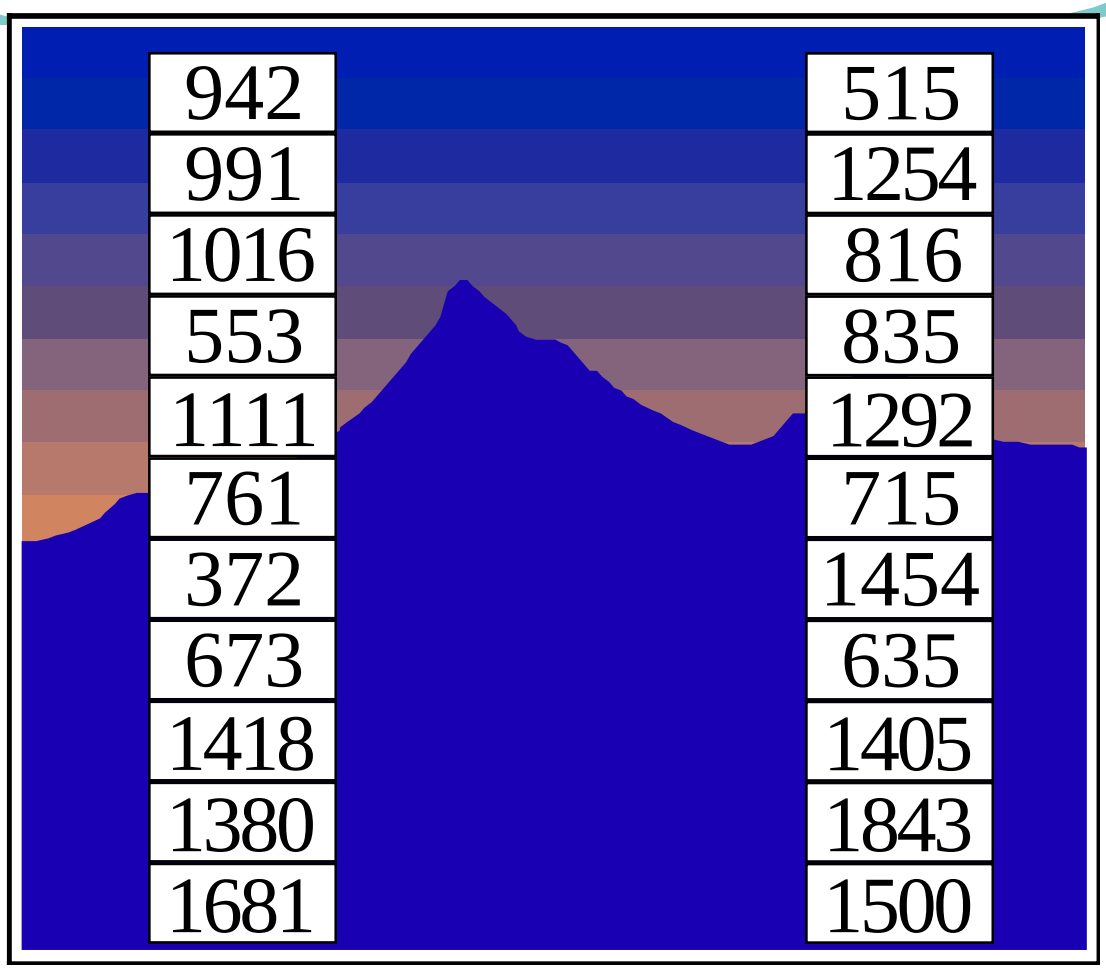


6.



Climbing Chimney Rock

126 246 389
427 589 865



Player 1	Player 2
942	515
991	1254
1016	816
553	835
1111	1292
761	715
372	1454
673	635
1418	1405
1380	1843
1681	1500

Directions: You need scratch paper, a pencil, and 11 markers. To climb Chimney Rock, add two or more of the numbers located in the cloud above the rock. If the sum results in one of the totals on your path, you may place a chip on that number. The first player to cover all numbers on the path wins. (Or, the player who has the most numbers covered when time is up wins.)

(Review whole number computation)

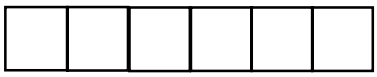
Keeping Skills Sharp

1. 180 + B + 1,654 = 1894
2. 10,607 - 805 =
2. 3 x 0 =
3. 40 ÷ 8 =
5. 6 x 70 =
6. Number of sides on a right triangle plus sides on two squares.
7. Eugene had 9 coins totaling 33¢. What were the coins?
8. Order from least to greatest: 1406, 1046, 1405
9. Sarah bought a costume for $7.52. How much change did she get from $20.00? What are the fewest number of bills and coins she could receive?
10. Mr. Cheddar runs a restaurant. He has sold a total of 900 hot dogs, cheeseburgers, and hamburgers. He sold them in equal numbers. He has also sold 475 more fish sandwiches than hot dogs. How many fish sandwiches has he sold?

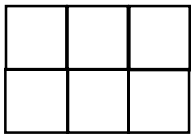
Solve this!

(1.05, 1.02e)

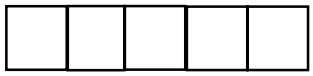
It is possible to make a rectangle with any number of cubes. For example, with 6 cubes you can make 2 rectangles. But with 5 cubes you can make only one rectangle.



1 x 6
(6 x 1)



2 x 3
(3 x 2)



1 x 5
(5 x 1)

Using from 2 to 30 cubes, how many numbers can you find that will allow you to make only one rectangle?
What are they?
Do you know what these numbers are called?

To the Teacher

Grade 4
WEEK 10

Calculate!
Lead students to think about how to begin this problem. Have them share strategies; for example, one might suggest making a chain of students, measure its length in meters, divide 40,000,000 by that amount, then multiply the quotient by the number of students.
Alternately, students might suggest measuring the arm span of one student in meters and using that to estimate the number of students in 40,000,000 meters. Groups of students should work on this together.

Exploring Data
Students will interview family members and neighbors to find out what occupations use math skills. Use this opportunity to talk to the students about the importance of mathematics. Graphs or charts could be made.

Thinking Mathematically
24

Looking Out for Math
nine 2x2's; four 3x3's; one 4x4

Fraction Action
The important concept is that fractional parts must be equal; e.g., a figure divided into thirds has three parts of equal size.
Solution: Figures b, d, and e are divided into thirds. Figures a, c, and f are not divided into thirds because they do not have equal parts.

Problem of the Week
Students should work on this problem in groups. Solution: Using cubes from 2 to 30, students can make only one rectangle with 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29 (10 possibilities). These numbers are called prime numbers because they have exactly 2 factors, 1 and themselves (and therefore only one possible set of rectangle dimensions.) This activity also provides a good opportunity to review multiplication facts through looking at factors of various products.

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

1. In 4235, what digit is in the ten's place?
2. 18 ÷ 2 + 4 - 5
3. How many dozens of donuts are needed so everyone in our class gets one donut?
4. 80 - 7
5. 11 x 8
6. If a hamburger costs 85 cents, how much change would you get from $1?
7. Which is shorter--1 foot or 1 meter?
8. Which is greater-- 1/3 or 1/2?

Keeping Skills Sharp

1. 60
2. 9802
3. 0
4. 5
5. 420
6. 11
7. 6 nickels, 3 pennies
8. 1046, 1405, 1406
9. $12.48, 6 coins 3 bills
10. 775

Calculate!

How many different whole numbers will divide 168 without a remainder? How many different whole numbers will divide 155 without a remainder? List your solutions.

(1.05)

Thinking Mathematically

(4.02)

Do most fourth graders get an allowance? Do the students who get an allowance have to do chores to earn it?

What is the typical allowance of a fourth grader? (Range, median, mode)

What are jobs fourth graders do to earn money?

Exploring Data

(4.01)

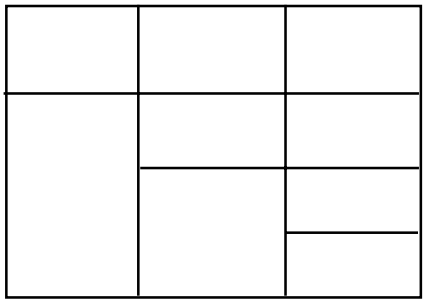
Look around you at school and at home. Do you see objects that are cubes? cones? cylinders? Make a list of each kind of polyhedra that you find on a chart like this:

CUBES	CONES	CYLINDERS

Display the results in a circle graph.

Looking Out For Math

If the area of the entire figure is 36 square inches, find the area of each section shown.

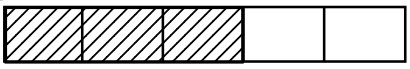


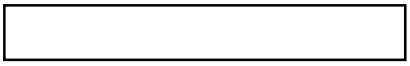
(2.01)

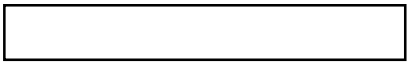
Fraction Action

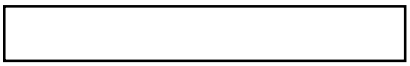
Mark the given fractional parts in each rectangle. Then shade in the correct number of parts to show the given fraction.

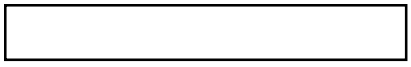
Example:

$\frac{3}{5}$ 

$\frac{1}{4}$ 

$\frac{2}{8}$ 

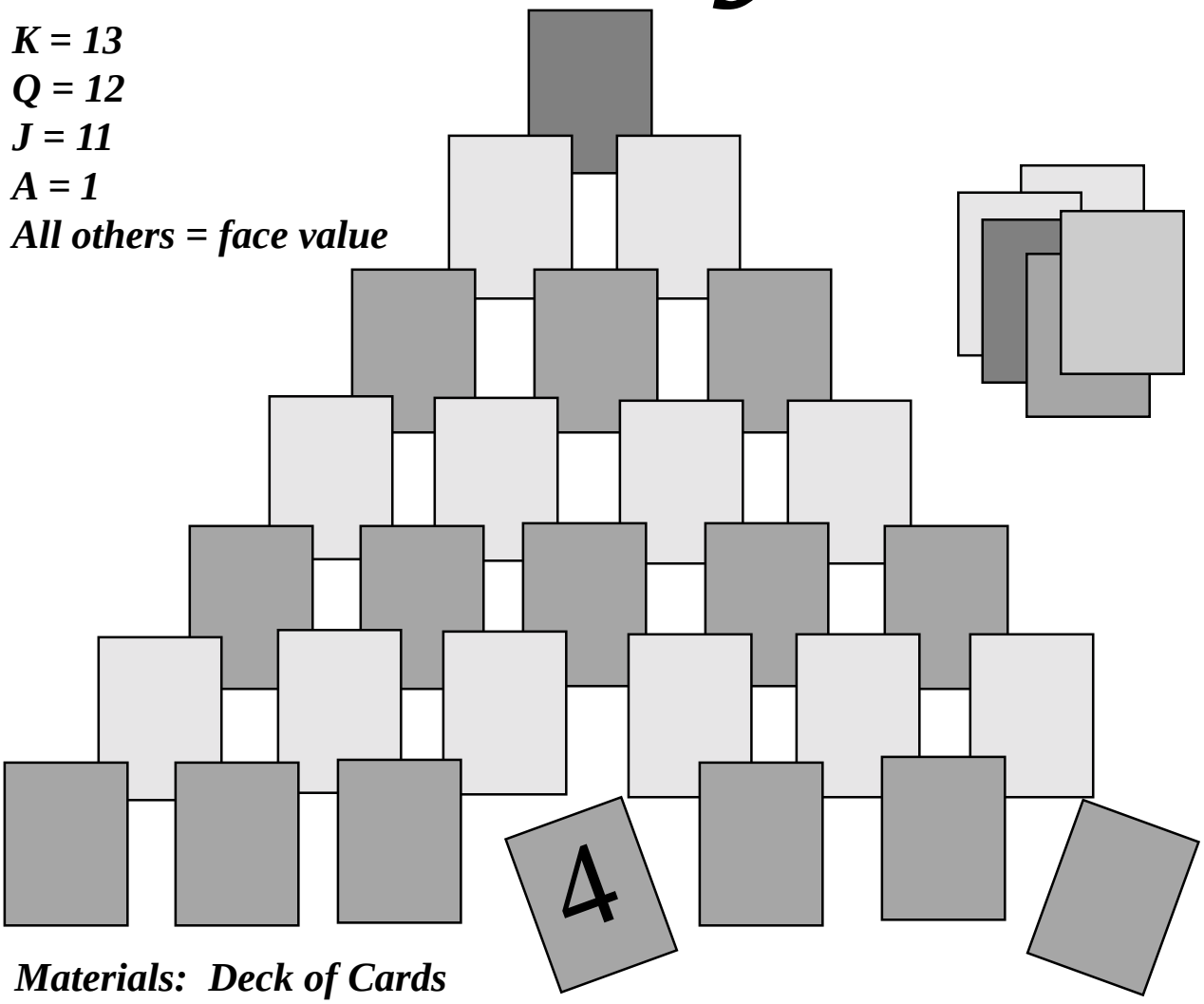
$\frac{2}{3}$ 

$\frac{4}{6}$ 

(1.03)

Solitairy 13

K = 13
Q = 12
J = 11
A = 1
All others = face value



Materials: Deck of Cards

Directions: Shuffle a regular deck of cards and lay them out in a pyramid as shown. Start at the top with one card and add one more card in each row until the last row has seven cards. Place cards face up.

To play, you may remove the cards whenever two cards add to 13 and they are not covered up by other cards. Kings count 13 and can be removed as soon as they are uncovered.

As you play, you will go through the remaining part of the deck one card at a time. If you can add any card that is not covered in your pyramid to the card you turn over, you may remove the card from your pyramid.

Keep score for each round. Your score is the total value of the cards you removed from the pyramid in sets of 13. The pyramid's score is all cards remaining in the pyramid plus those not used in the deck.

Keeping Skills Sharp

1. 453 + 8971 + 36 =
2. 57,048 - 49,892 =
2. (3 x 3) + 8 =
4. 324 ÷ 3 =
5. 6 x ☐ = 18
6. How many faces on a cube?
7. 6 quarts =_____ gallons
8. What is the value of the 3 in 435,089?
9. Brad likes to climb trees. On Monday he climbed 6 more trees than on Tuesday. On Tuesday he climbed 5 trees. On Wednesday he climbed 7 fewer trees than on Monday. How many trees did he climb on Wednesday?
10. The oil drillers drilled 18 meters in the first well but did not find oil. They drilled 6 more meters and found oil. To reach oil in the second well they had to drill twice as deep. How far did they drill the second well?

Solve this!

On a farm, a worm came out of his hole and saw some chickens and some horses. Altogether he saw 20 legs. How many chickens did he see? How many horses? Is there more than one possible answer?

(1.05)

To the Teacher

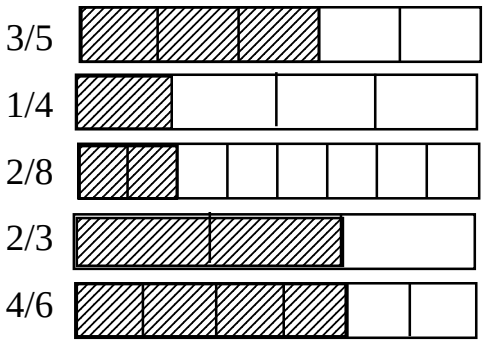
Grade 4
WEEK 11

Calculate!
12 possibilities (factors) of 168:
2, 3, 4, 6, 7, 8, 21, 24, 28, 42, 56, 84
2 factors of 155: 5, 31

s

Problem of the Week
There are 3 solutions:
2 chickens & 4 horses; 4 chickens & 3 horses; 6 chickens & 2 horses. (Remember, the worm saw chickens and horses!)
Have students share their strategies for solving this problem. Did they use trial and error? Did they set up a table? Is there a pattern?

Fraction Action



This activity gives students an opportunity to estimate fractional parts. Model for the children that it is easier to mark the more difficult ones by marking the easier fractional parts as guides. For example, to estimate eights, the best procedure is to divide into halves first, then split each half into two parts to show fourths. Eighths can then be easily shown.

Looking Out for Math
Largest rectangle 9 sq.in.; small square 6 sq.in.; smallest rectangles 3 sq.in.

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

1. 1 more than 999
2. 7 x 4 - 4 ÷ 2
3. Round to nearest ten: 26
4. 28 + 60
5. 10 x 5
6. 15 minutes after 7:25
7. Number of cups in 16 ounces
8. Number of days in a year

Keeping Skills Sharp

1. 9460
2. 7156
3. 17
4. 108
5. 3
6. 6
7. 1 1/2
8. 30,000
9. 4
10. 48

Calculate!

How old are you in years?

in months?

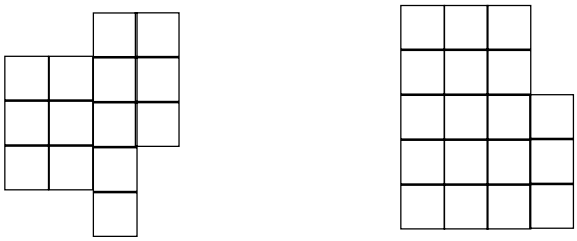
in weeks?

in days?

in hours?

(1.05)

Looking Out For Math



Do these figures have the same perimeter?

How do you know?

(2.02)

(1.02e)

Thinking Mathematically

Write a story to illustrate this equation:

$$30 \div 5 = 6$$

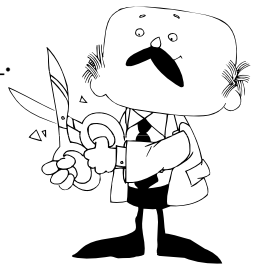
Fraction Action

Divide 12 counters into thirds. How many groups do you have? _____ Using your counters, give these amounts:

One-third of 12 is _____.

Two-thirds of 12 is _____.

Three-thirds of 12 is _____.



Divide the 12 counters into fourths. How many groups?_____ Give these amounts

One-fourth of 12 is _____.

Two-fourths of 12 is _____.

Three-fourths of 12 is _____.

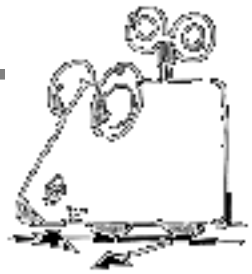
Four-fourths of 12 is _____.

(1.03)

Exploring Data

Develop a survey to find out the favorite football teams of your classmates. What questions must you ask as you plan the survey? Display the data after doing the survey. How many different ways can you display the data? Which one is the most appropriate?

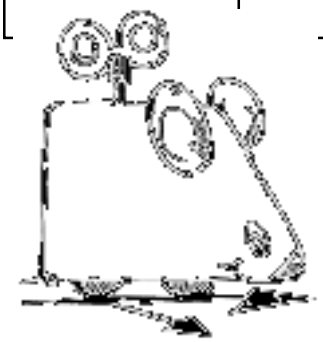
(4.01)



I GET AROUND!

Number of Players: Two
Materials: Centimeter grid sheet for each player (see Blackline Master), number cubes, recording/score sheet
Directions: Players take turns. During a turn, a player tosses the cubes and constructs a rectangle on the centimeter grid by marking length on a horizontal line according to the number thrown on one cube and width according to the number on the other cube. The player then outlines the entire rectangle, colors it in and records length, width and perimeter on the score sheet. After four rounds, a total score is determined by the sum of the perimeters. Highest score wins.

	Length	Width	Perimeter
Round 1			
Round 2			
Round 3			
Round 4			
			Total Score



(2.01, 2.02)

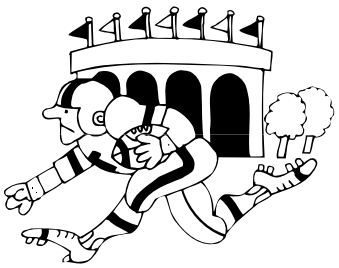
One-Centimeter Graph Paper

Keeping Skills Sharp

1. 36,586 + 435,786 =
2. 6354 - 456 =
3. 200 x 6 =
4. 32 ÷ 5 =
5. 11 x 9 =
6. Number of edges on a cube?
7. Nancy's curfew was 6:45 P.M.. She was 25 minutes late. What time did she arrive?
8. Put >, <, or = in the box. 45,675 ☐ 45,575
9. A bank serves 30 customers every hour. If the bank is open from 9 A.M. till 3 P.M., how many customers are served in one day?
10. The Carolina Dynamos played 125 soccer games. They won 15 more games than they lost. How many games did they win?

Solve this!

There are 4 possible scoring plays in an NFL football game:
- Touchdown = 6 points;
- Point after touchdown = 1 point;
- Field goal = 3 points; and
- Safety = 2 points.



a. How many different ways could the team score 11 points?

b. What final scores, between 1 and 30, are <u>not</u> possible for a team to make?

(1.05)

To the Teacher

Grade 4
WEEK 12

Calculate!

Thinking Mathematically
Writing a story situation for a division problem often provides a challenge for fourth graders. You may want to have students share and critique problem ideas as a group before they write problems independently.

Exploring Data
Questions to consider include what teams will be included on the surveys (college teams or NFL teams; specific teams or open-ended lists, etc.) Discuss with students what kinds of graphic organizers would be appropriate for this type of information.

Problem of the Week
Solution: a) There are 4 ways to score 11:
6 + 3 + 2; 6 + 2 + 2 + 1; 3 + 3 + 3 +2; 3 + 2 + 2 + 2 + 2. (Note that 1 cannot be used except with a 6).
b) Only the score of 1 is not possible

Fraction Action
Solutions: thirds: 3 groups, 4, 8, 12; fourths: 4 groups, 3, 6, 9, 12
If you have not done previous work with fractional parts of whole numbers, do the following activity with the class before they do this page: Give each child 24 counters. Have them divide the chips into various fractional parts including halves, thirds, fourth, fifths (which won't work because groups won't be equal or there are leftovers), etc. For each fractional part, have the students record various fractional amounts, e.g., 1/4 of 24 is 6, 2/4 of 24 is 12, 3/4 of 24 is 18, 4/4 of 24 is 24. This activity also provides an opportunity to see that some fractional parts produce the same amounts (2/4, 1/2, and 8/16 all are 12 out of the 24 counters) and are therefore equivalent.

Mental Math

Directions to Students: Number your paper from 1 to 8. Write your answers as the questions are called out. Each question will be repeated only once.

1. 10 more than 550
2. 12 + 13 ÷ 5 + 11
3. Nearest ten: 92
4. 40 - 4
5. 7 x 2
6. 16 minutes before 8:00
7. The value of 3 quarters, 2 dimes, and 3 pennies
8. Number of legs on 6 tables

Keeping Skills Sharp

1. 472, 372
2. 5898
3. 1200
4. 6 r 2
5. 99
6. 12
7. 7:10
8. >
9. 180
10. 70