



Calculate!

What is the largest product you can compute on your calculator?
largest quotient?

Is the answer the same for all the calculators in your class?

(1.02)



Thinking Mathematically

How many different kinds of quadrilaterals, ABCD, with vertices A (2,1) and B (3,3) can be graphed?

What are they?

How many are regular polygons?

(3.01)



Exploring Data

Brainstorm a list of things which you could observe that are likely to change over time. For example, the number of minutes your older sister talks on the phone each day or the number of cars that pass your house each day between 5:00 and 5:30 p.m.

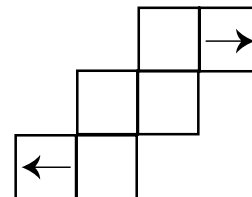
Choose one topic to investigate and keep data for two weeks. Display your data and write a summary of what you observed.

(4.01)

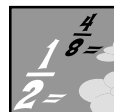


Looking Out For Math

If this hexomino were folded into a cube, which way would the arrows be pointing in relation to each other?



(3.02)



Fraction Action

What fraction of the numbers from 1 to 20 are multiples of 2? _____?

multiples of 3 _____?

multiples of 4 _____?

multiples of 5 _____?

multiples of 6 _____?

multiples of 8 _____?

Is there a pattern?

Does it continue?

(1.03)

South Square



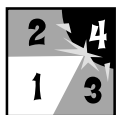
Materials: 3 sets of cards numbered 4, 5, 6, 7, 8, 9 or a number cube with faces numbered 4, 5, 6, 7, 8, 9; gameboard; 15 markers per player

Number of Players: 2 - 3

Directions: First player draws card or rolls a number cube. The number that shows is the divisor. The player finds a number on the board divisible by this number and places a marker on it. The player scores the number of the quotient and one additional point for each adjacent square that has a marker on it. The square may be adjacent vertically, horizontally, or diagonally. A cumulative score is kept for each player. When all markers have been used, the scores are checked. High score wins.

12	14	15	16	18	20	21	8	24	27
28	30	32	35	36	40	42	44	45	48
25	12	16	18	20	24	27	28	32	36
49	50	77	54	55	56	60	63	64	65
48	60	24	18	16	32	40	18	16	80
30	42	60	64	80	36	54	72	40	48
66	96	70	72	75	80	81	84	88	90
60	84	90	56	99	63	48	72	36	80

(1.02)



Keeping Skills Sharp

1. $23 + 456 + P + 803 = 1292$
2. Find the difference of these two numbers:
3456 and 8496
3. $7 \times Y = 42$
4. $M \times 3 = 81$
5. $40 \div F = 8$
6. 1 day = ____ hours
7. 3 pennies + 5 quarters =
8. What would you subtract from 1,492 to change the 4 to a zero?
9. Mr. White read 3 chapters on Monday, 5 chapters on Tuesday, 7 chapters on Wednesday. If this pattern continues on what day will he read 21 chapters?
10. Mario wrote a story about dinosaurs. The story had 325 words. When he edited the story, he deleted 36 words and added 82 new words. How many words are in the story now?



Solve this!

What Number Am I?

My ten-thousands digit is 3 less than my thousands digit.

My thousands digits is 3 times my hundreds digit.

My hundreds digit is half my tens digit.

My tens digit is 4. My ones digit is twice my tens digit. What number am I?



(1.01b)



To the Teacher ..

Grade 4

WEEK
25

Calculate!

Answers will vary.

Exploring Data

Could be a partner activity. Students determine an appropriate method of graphing the data. Explanations of range, median and mode are in the Teacher Talk Section.

South Square Game

You may need to model how to keep score.

Problem of the Week

36, 248

Thinking Mathematically

Trapezoid, parallelogram, rhombus, kite, square.

One regular quadrilateral - square at (2,1); (3,3); (5,2); (4,0).

Looking Out for Math

parallel

Fraction Action

- | | | | |
|----|-------|----|------|
| 2) | 10/20 | or | 1/2 |
| 3) | 6/20 | or | 3/10 |
| 4) | 5/20 | or | 1/4 |
| 5) | 4/20 | or | 1/5 |
| 6) | 3/20 | | |

There is one less of each multiple from 3 to 7, but the pattern stops there. There are 2 multiples each of 8, 9, and 10.

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. Which is larger? 4500 or 3999
2. $2 + 25 \div 3 + 4$
3. How many quarters:? \$11.15
4. $93 - 14$
5. 6×6
6. The value of 17 dimes and 3 nickels
7. Number of inches in 4 feet
8. $1/2$ of 48

Keeping Skills Sharp

1. 10
2. 5040
3. 6
4. 27
5. 5
6. 24
7. \$1.28
8. 400
9. Wednesday
10. 371



Calculate!

Divide 10 numbers by 2 and 10 others by 4.
Compare the whole number remainders with the remainders expressed as fractions and with the decimals on your calculator.

(1.02, 1.03)



Thinking Mathematically

Write a story to illustrate this equation:

$$8 \times 7 + 3 = n$$



(5.02)



Exploring Data

When tossing three coins, what outcome do you expect to come up most often? Why?

Students can work in pairs and toss three coins ten times. Record results.
Pool the results for the class.

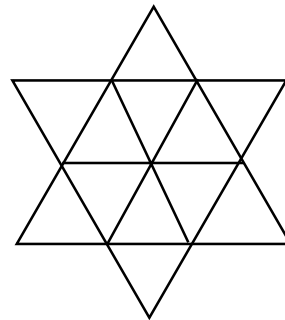
What do you discover?

(4.01, 4.04)



Looking Out For Math

How many triangles are in this shape?



Fraction Action

(1.03)

You might use a hundred square to help you solve these:

$$\frac{3}{10} = \frac{?}{100}$$

$$\frac{5}{10} = \frac{?}{100}$$

$$\frac{?}{10} = \frac{40}{100}$$

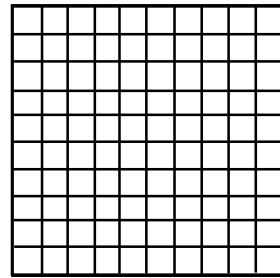
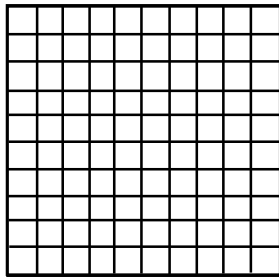
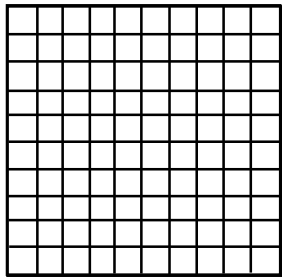
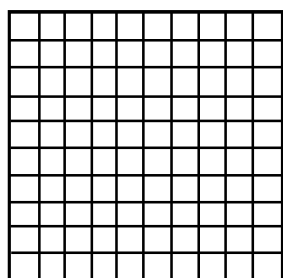
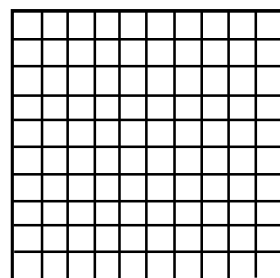
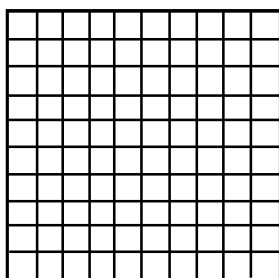
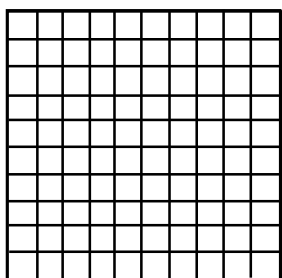
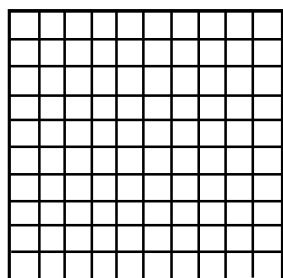
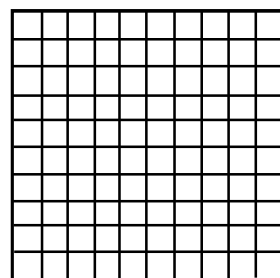
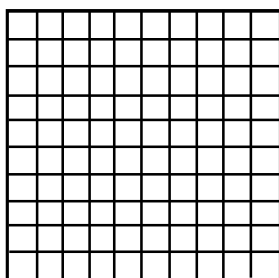
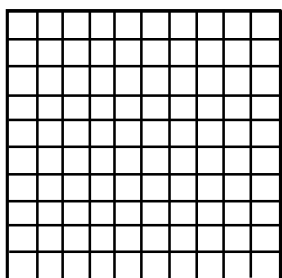
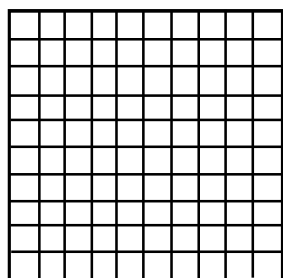
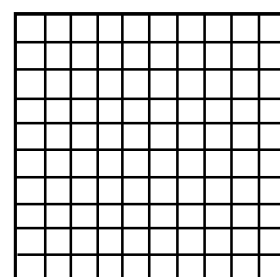
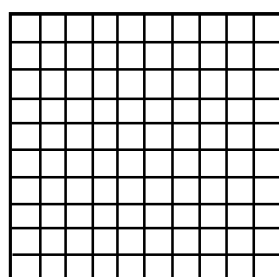
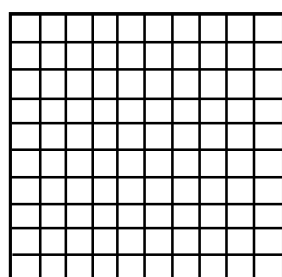
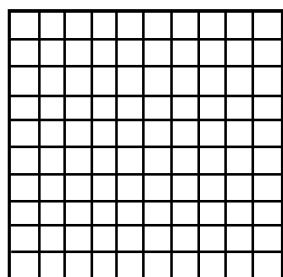
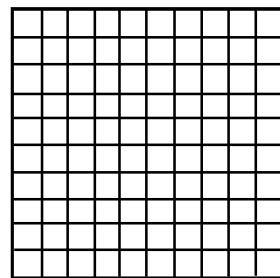
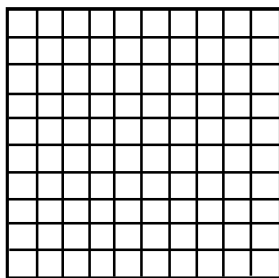
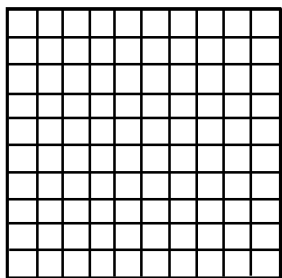
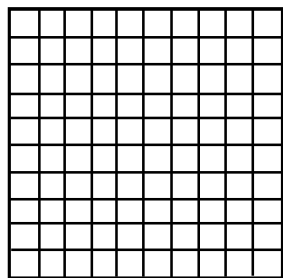
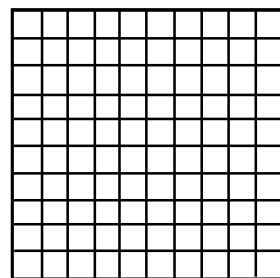
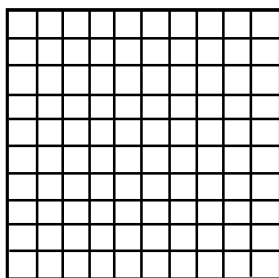
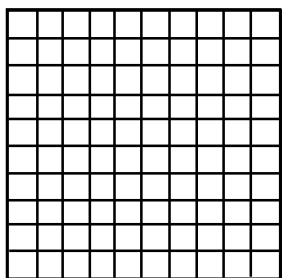
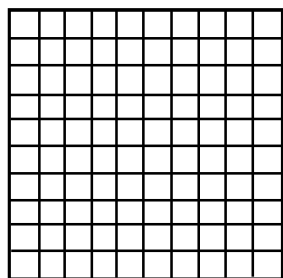
$$\frac{?}{10} = \frac{60}{100}$$

$$\frac{3}{10} + \frac{7}{100} = \frac{?}{100}$$

$$\frac{8}{10} + \frac{6}{100} = \frac{?}{100}$$

$$\frac{5}{10} + \frac{2}{100} = \frac{?}{100}$$

$$\frac{2}{10} + \frac{5}{100} = \frac{?}{100}$$



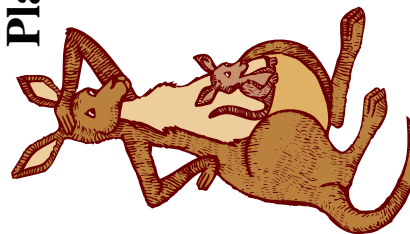
HATTERAS HOP

Number of Players: 2

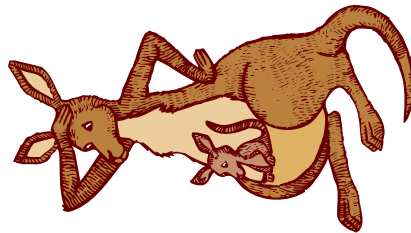
Materials: Players need crayons and a set of cards.

Directions: Shuffle and place the fraction cards face down. Each player picks a card from the top of the pile. The player with the larger fraction colors that fractional part of her/his **H**. Place the cards at the bottom of the pile. Continue with two more cards. If the player with the larger fraction cannot color that fractional part of the **H**, replace both cards and choose two more. Continue until one person has colored the whole **H**. That person has "**Hopped To Hatteras!**"

Player 1



Player 2



(1.03)

$$\frac{1}{2}$$

$$\frac{1}{3}$$

$$\frac{1}{6}$$

$$\frac{2}{6}$$

$$\frac{1}{9}$$

$$\frac{3}{9}$$

$$\frac{1}{18}$$

$$\frac{2}{18}$$

$$\frac{3}{18}$$

$$\frac{1}{2}$$

$$\frac{1}{3}$$

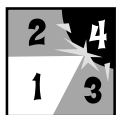
$$\frac{1}{6}$$

$$\frac{2}{6}$$

$$\frac{3}{6}$$

$$\frac{4}{18}$$

$$\frac{2}{9}$$



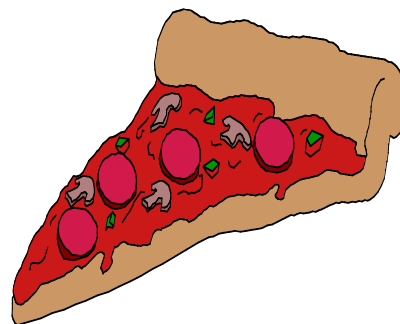
Keeping Skills Sharp

1. $34,560 + 15,079 = C$
2. $8056 - B = 7,111$
3. $10 \times D = 110$
4. $72 \div Z = 8$
5. $38 \div 8 = W$
6. Figures that are the same size and shape are called ?
7. 1 year = _____ weeks
8. Write $>$, $<$, or $=$: 4731 4713
9. A carpenter has 25 nails and 8 boards. Does she have enough to hammer 3 nails in each board? If so, how many nails will she have left over?
10. Nadia made brick borders around her three square gardens. She used six bricks on each side to make a border. How many bricks did she use for the borders?



Solve this!

What is the maximum number of pepperoni slices that will fit on an 8" pizza. (They may touch, but not overlap.) First, make an estimate and then test your guess.



(1.05)

To the Teacher ..

Grade 4

WEEK
26

Calculate!

Students might make a class chart which will help them begin to see fraction and decimal relationships, e.g., $1/4 = .25$, etc.

Exploring Data

2 heads and 1 tail or 2 tails and 1 head are more likely outcomes than 3 heads or 3 tails. After the activity, lead the children to draw a tree diagram to show the "theoretical probability" of each outcome. (Their experiment results show experimental probability).

Fraction Action

Give students copies of "Decimal Models - Hundredths" (Blackline Masters) to shade in to help them see these relationships. Relate these fractional relationships to decimal relationships, i.e., $3/10 = 30/100$; $.3 = .30$

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. 20 less than 133
2. $17 + 4 \div 7 - 2$
3. Nearest hundred: 8,279
4. $76 + 12$
5. 12×0
6. 5 minutes before 12:50
7. Number of centimeters in 3 meters
8. Number of fingers and toes on two students.

Keeping Skills Sharp

1. 49,639
2. 945
3. 11
4. 9
5. 4 r 6
6. congruent
7. 52
8. >
9. Yes, 1 left over
10. 72 bricks



Calculate!

What number could you multiply by 25 to have a product between 442 and 452?
 What number times 25 gives a product between 738 and 748?

(1.02b)



Thinking Mathematically

How many different ways can you name 27?

twenty-seven

27

5 more than 22

$20 + 7$

$(2 \times 10) + 7$

$29 - 2$

Think of as many ways as you can.

Make a list. Compare your list to a friend's.

Make a class list. (5.03b)



Exploring Data

Estimate the number of jumping jacks you could do in 30 seconds. Perform the activity. Graph the results. Could you display this data in a stem and leaf? If you jumped for another 30 seconds and then a third 30 seconds (close together), do you think your number would go up or down? Experiment.

(4.01, 4.03)

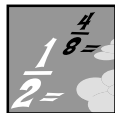


Looking Out For Math

Roll two number cubes. How many different ways can you roll and get a sum of seven? 4?

What other sums are possible?

(4.04)

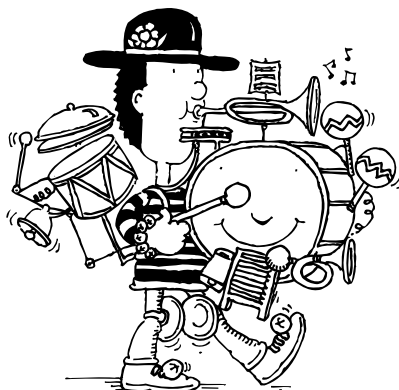


Fraction Action

Is it possible to write 12 numbers between 2.4 and 3.1?

What numbers come between one-third and three-fourths?

How could you explain your response to a student who has been absent and did not hear the class discussion?



(1.01c)

DECI-MILL DUNK



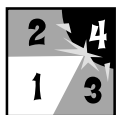
Number of Players: 2 to 4

Materials: You need 2 number cubes and markers (like cm cubes) for each player (a different color for each player).

- Directions:**
1. Take turns rolling the cubes. Choose either space on the grid named by them i.e. (4,5) or (5,4).
 2. Place a marker on any open space with a number less than the number in the space named by your roll. (If the space you roll is covered, look under the marker.)
 3. If there is no open space with a number less than your roll, you lose a turn.
 4. Continue taking turns until one player has four in a row in any direction. If all spaces are filled with no color in a row of four, the player with the most markers on the board is the winner.

6	.04	.41	.46	.59	.45	.09
5	.26	.40	.76	.51	.75	.19
4	.33	.31	.62	.85	.68	.34
3	.37	.39	.69	.87	.61	.38
2	.17	.30	.74	.52	.73	.24
1	.07	.29	.44	.58	.43	.02
	1	2	3	4	5	6

(1.01c)



Keeping Skills Sharp

1. $348 + 506 + S = 1124$
2. $H - 3,549 = 2,474$
3. $24 \div 6 = G$
4. $42 \times L = 168$
5. $8 \times D = 48$
6. Name the next 3 numbers in this pattern:
11, 22, 33, 44, ____, ____, ____
7. Which figure has more vertices? hexagon or square
8. Write in standard form: $400 + 700,000 + 1,000 + 2$
9. Sheila said, "I lost 2 coins. I had \$5.96. Now I only have 1 five-dollar bill, 2 quarters, 2 dimes, 1 nickel and 1 penny." What coins did Sheila lose?
10. One package of hamburger buns has enough buns for 8 burgers. How many packages of rolls do you need for 28 burgers?



Solve this!

Anthony and Amelia spent a total of two hours putting up notices for their neighborhood talent show. They posted notices all over town. All kinds of prizes were being given, including "most original costume." Amelia worked three times as long as Anthony putting up signs. How long did each of them work?



(1.03)

To the Teacher ..

Calculate!

The first product must be 450, the only multiple of 25 in the range.

$$25 \times 18 = 450$$

No number times 25 would be between 738 and 748 because the nearest multiples are 725 and 750.

Thinking Mathematically

This activity can involve all students easily as answers can be from the simple $25 + 2$ to $6^2 - 9$ or $1/2$ of 54 or $3 \times 3 \times 3$.

Problem of the Week

Solution:

Anthony $1/2$ hour

Amelia $1 \frac{1}{2}$ hours

Divide 2 hours into 4 parts (3 for Amelia and 1 for Anthony) of 30 minutes each. Anthony worked 30 minutes ($1/2$ hour) and Amelia worked 3×30 minutes or $1 \frac{1}{2}$ hours

Fraction Action

Yes. Students should give a variety of examples,

e.g., 2.4, 2.41, 2.42, 2.75, 2.79, 3.01, etc.

An infinite number of fractions are between $1/3$ and $3/4$:

e.g., $1/2$, $3/8$, $2/5$, $2/3$, $3/5$, etc.

A fraction chart showing relationships of different fractional parts to one whole and to each other would be helpful.

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 less than 800
2. $24 - 8 + 4 + 1$
3. Nearest ten: 541
4. $50 - 13$
5. 11×9
6. The value of 8 quarters and 7 nickels
7. Number of centimeters in half a meter
8. $1/2$ of 66

Keeping Skills Sharp

1. 270
2. 6,023
3. 4
4. 4
5. 6
6. 55, 66, 77
7. hexagon
8. 701, 402
9. 2 dimes
10. 4 packages



Calculate!

Calculate these products:

$$9 \times 9 = n,$$

$$9 \times 99 = n,$$

$$9 \times 999 = n,$$

$$9 \times 9999 = n.$$

Can you predict $9 \times 99999 = n$? Use your calculator to check your prediction.

(5.01b)



Thinking Mathematically

Think of three hats that you would like to have. If you wore all three hats at the same time, one on top of the other, how many different ways could you wear hats? Show how you solve this problem. If you choose the hats you will wear each day randomly, what is the probability that you will choose the same hats on Wednesday as on the Tuesday before?

(4.04)



Exploring Data

Design, conduct and display the results of a survey of favorite snacks among your classmates. What is the best graph to use to display your results?

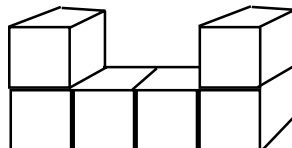
Write three questions to help compare the data.

(4.01)



Looking Out For Math

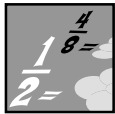
Suppose this figure was painted all over.



How many squares would be painted?



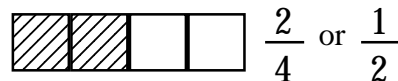
(4.04)



Fraction Action

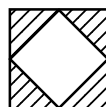
Tell what part of each region is shaded in two different ways. Be ready to prove your solutions.

Example:



$$\frac{2}{4} \text{ or } \frac{1}{2}$$

a)



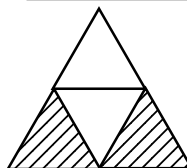
_____ or _____

b)



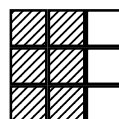
_____ or _____

c)



_____ or _____

d)



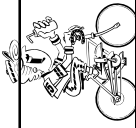


_____ or _____

(1.03)

Murphy To Manteo

Materials: You and your partner need a gameboard, a number cube and a small marker each.

Go Back 3	49÷7	64÷8	42÷7	5÷5	Go back 6	27÷3
56÷8		72÷8	48÷6		21÷7	36÷6
81÷9		40÷5	36÷4		48÷8	40÷8
45÷9		8÷2	24÷3		32÷4	
12÷3		42÷6	16÷4			
6÷1		90÷9	27÷9	28÷4	Lose a turn	
30÷6	59÷9	54÷6			4÷4	
		Lose a turn	18÷6	15÷3	63÷7	
				56÷7	8÷1	
				Go back 5	42÷7	16÷8

YES!


Directions: Players roll the cube to determine the number of spaces to advance. The player must answer the problem correctly in each space passed as the marker is moved forward. If an error is made, the player must return to the starting place for that turn. Players take turns. The first player who crosses the state and comes to the END space wins.

(1.02)



Keeping Skills Sharp

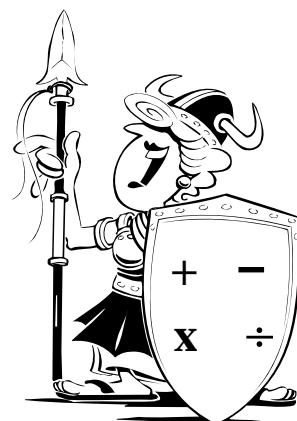
1. What is the sum of 250, 3, and 3,459?
2. $26,459 - 19,878 = G$
3. Find the product of 8, 6, and 0.
4. $J \times 600 = 5400$
5. 36 divided by 6
6. One half of 12
7. It is 3:00 now. What time was it 40 minutes ago?
8. Round 63,596 to the nearest thousand.
9. The basketball game started at 11:00 a.m. It lasted for 3 hours and 45 minutes. What time did it finish?
10. Zachary earns \$5.00 per hour for working at the pet store. If he works five and a half hours, how much will he earn?



Solve this!

Carmen's uncle sends her a package of Nancy Drew mysteries every few months. She may get from one to six books in a package. She kept track of the postage he had to spend. (The postage rates did not change.) A package with two books costs 95 cents to mail; a package with five books costs \$1.85. A package with one book costs 65 cents, one with four books costs \$1.55; and each package of 3 books cost \$1.25. How much did it cost him to mail a package of 6 books? How much would it have cost him to mail all 52 books at once?

(5.01b)



To the Teacher ..

Calculate!

$9 \times 9 = 81$

$9 \times 99 = 891$

$9 \times 999 = 8991$

$9 \times 9999 = 89991$

So: $9 \times 99999 = 899991$

Thinking Mathematically

Read Laura Geringer's Three Hat Day to the class. Discuss some different ways to wear 3 hats. (There are 6 different ways to wear 3 hats.) Extension: "How many different ways could RR Pottle wear 4 hats?"

(24: $4 \times 3 \times 2 \times 1$) Challenge students to predict how many ways 5 hats could be worn.

(120: $5 \times 4 \times 3 \times 2 \times 1$) Interested students might pursue the question for larger numbers of hats. (This activity is a concrete way for students to experience permutations-grouping of a given set of objects in which the order matters.)

Problem of the Week

Each extra book cost 30 cents more. So six books cost \$1.85 (for 5 books) + \$0.30, or \$2.15. All 52 books at once would have cost 65 cents for the first book and $51 \times \$0.30$, or \$15.30 for the rest. $\$15.30 + \$0.65 = \$15.95$ for all 52 books.

Looking Out For Math

20 squares

Fraction Action

- a) $1/2$ or $4/8$
- b) $2/6$ or $1/3$
- c) $2/4$ of $1/2$
- d) $2/3$ or $6/9$

Game of the Week

Murphy to Manteo

This game focuses on division facts. When students encounter facts they do not know, have them keep a "learning list" to work on the specific facts. Can they predict the number needed for 10 steps?

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. The largest 4-digit number
2. $3 \times 2 \times 2 + 3$
3. Nearest hundred: 1,592
4. $12 + 31$
5. 7×7
6. 18 minutes after 4:10
7. Number of centimeters in 8 meters
8. Triple 5

Keeping Skills Sharp

1. 3712
2. 6581
3. 0
4. 9
5. 6
6. 6
7. 2:20
8. 64,000
9. 2:45
10. \$27.50