



Fun with Multiplication

Function Machine

IN	OUT
3	15
7	35
2	10
4	_____

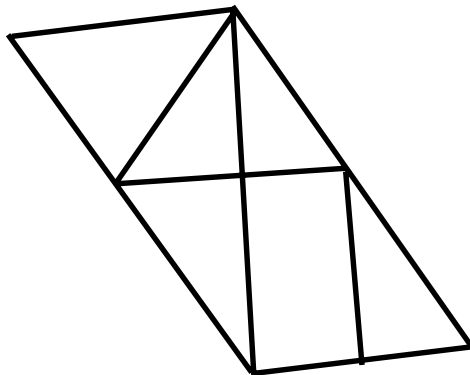
If four was put in, what number would come out? What rule did the Function Machine use?

(1.03a, 5.01)



Seeing Math

How many triangles are here?



(3.01)



Writing About Math

(1.06)

Write a math story to tell about:

$$55 - 25 = 30$$



Let's Find Out

- | | |
|------------|--------------|
| Lisa-walks | Frank-car |
| Jose-bus | Keisha-walks |
| Mike-bus | Russell-bus |
| Jean-car | Maria-car |
| Joseph-car | Tomeka-bus |
| Lamont-bus | Ben-bus |

Make a graph to show how these third graders get to school.

Write a title and label each axis of your graph.

What other information does this graph give?

(4.01)



Let's Explore

25	362	49	560
94	5	33	444

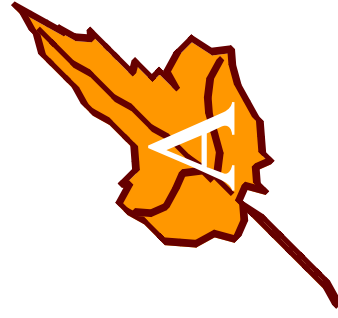
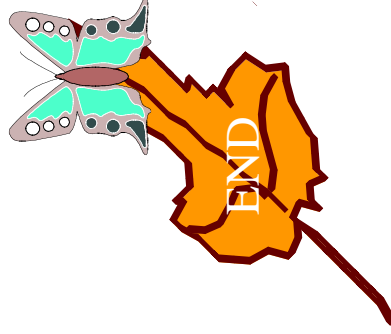
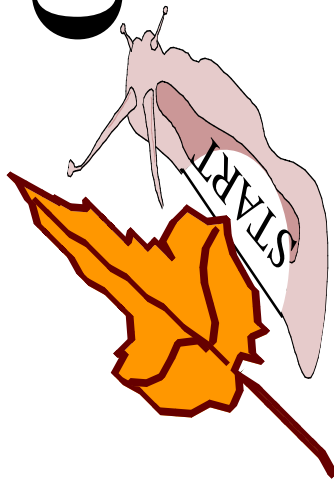
Sort these numbers into two groups. What rule did you use to sort?

Sort the numbers again into two groups using a different rule. What rule did you use this time?

Can you sort them again using a different rule?

(1.06)

Centimeter Crawl



Players: Two

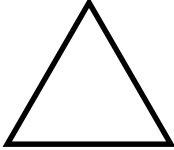
Materials: Gameboard, colored pencil for each player, centimeter ruler, one number cube

Directions: Roll the number cube. Draw a line that number of centimeters long toward the next leaf (A, B, C, D, End). Player must reach inside the leaf with a roll before moving on to the next leaf. If a roll is too much, player may draw two zigzag line segments equal to the roll. The winner is the first player to reach the End Butterfly.

(2.01b)



Keeping Skills Sharp

- $8 + \square = 11$
- $12 - \square = 5$
- $129 + 59 = \square$
- If you buy something for 40¢, what is the greatest number of coins you can use if you do not have pennies?
- What time is three hours and thirty minutes before 12:30?
- Draw the whole if this is one-half. 
- How many tens are there in 153?
- If you collect baseball cards and put them in a folder that has six on every page, how many pages do you need to hold all 32 of your cards?



Solve this!

Study some road maps.

Locate the interstate highways that run north and south.
Record the numbers.

Locate interstate highways running east and west.
Record the numbers.

What do you notice?



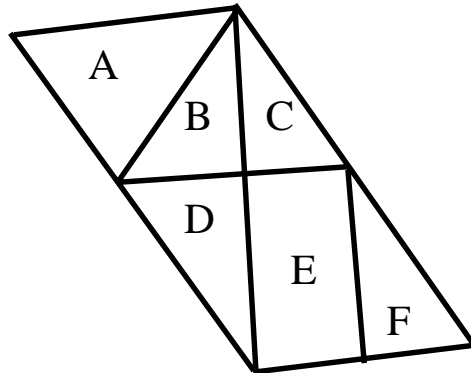
(5.01)

To the Teacher ..

Seeing Math:

(nine triangles:

A, B, C, D, F, BD, BC, ABD, CEF)



Let's Explore:

This open-ended activity will provide information about students' knowledge of number sense. Rules for sorting might include one, two or three digits, odd or even, multiples, ... etc.

Let's Find Out:

Blacklines for centimeter and inch grid paper are available for graphing.

Problem Solver Special:

Teachers should have a collection of state and national road maps available. Interstates running north and south are odd numbers. (I-85, I-95) Interstates running east and west are even numbers. (I-40)

Suggested Literature:

Lemonade for Sale by Stuart Murphy (Math Start Series)

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.

$30 + 20 + 10$

number of legs on two spiders

What comes next...156, 166,
176,___?

value of one dollar, one quarter
one dime and one nickel

$20 + 4 + 10 - 3$

two tens and 12 ones

ten less than 483

number of pennies in
a dollar

Keeping Skills Sharp

3

7

188

eight

9:00

answers
will vary

15 tens

six pages



Fun with Multiplication

At a horseshow, there were both people and horses performing. If there were 26 legs all together, how many people and horses could there be? Explain with picture, words or numbers. Is there more than one solution?

(1.06, 5.01)



Writing About Math

All squares are rectangles.
Not all rectangles are squares.



Explain why this is true.

(3.01)



Let's Explore

A pentomino is a configuration of five squares, each having a side fully adjacent with another square. Use one-inch square tiles or one-inch square paper.

Find all the possible pentominoes. Record pentomino shapes on grid paper. Cut out shapes. Compare shapes to make sure none are the same.

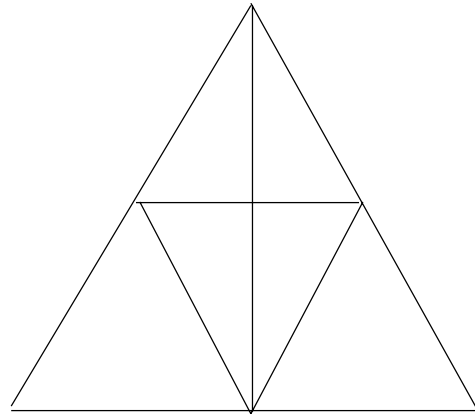
How do you know when you have found them all? (Save the pentominoes for next week.)

(3.01)



Seeing Math

How many triangles are in the picture?



(3.01)



Let's Find Out

Graph the birthdays in your class by seasons.

Are the birthdays evenly distributed or are more born in one season than another?



(4.01)

GEO-BINGO



Players: Four or more

Materials: Bingo board, Bingo cards, 10-12 chips for each player.

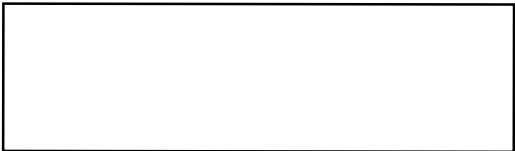
Directions: Each player puts a chip on the FREE space on the card. The leader shuffles the call cards and draws from the top of the deck, reads to the group and each player puts a chip on the shape that is being described. If that shape is not on the card, the player puts no marker down. The player calls GEO-BINGO when he has four in a row on his card. Rows may be vertical, horizontal, or diagonal.

Bingo Boards and Cards (Blacklines Week Ten)

(3.01)



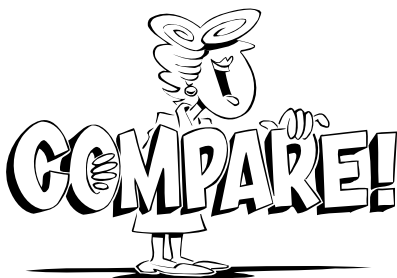
Keeping Skills Sharp

- $9 + \square = 16$
- $12 - \square = 7$
- $36 + 17 = \square$
- If you buy popcorn that costs 65¢ how many quarters do you need to give the clerk? How much change do you get back?
- If Katie goes to the park at 1:30 and Kellie comes 45 minutes later. What time will Kellie arrive?
- Color one half of this rectangle red. Color half of the rest blue. What part is not colored?

- Five hundreds and seventeen ones.
- Rita has 24 marbles. Mickey has 17 marbles. Together, they have 14 more than Linda. How many does Linda have?



Solve this!

Patti did half of her home work before supper. Billy did three-fourths of his homework and Janice did two-thirds of hers. Who had the least amount of homework to finish after supper? Who had the most to finish?

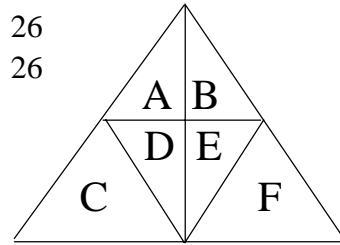


To the Teacher

Fun with Multiplication:

There are many possible solutions. After students share their solutions, discuss ways to organize solutions to know you have all possible answers.

Horses	People	Total Legs
1	11	26
2	9	26
3	7	26



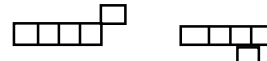
Seeing Math:

- six single: (A, B, C, D, E, F)
- four double: (AB, AD, BE, DE)
- two triple: (ADC, BEF)
- one sextuple: (ABCDEF)
- thirteen triangles

Let's Explore:



This is a pentomino.



These are not pentominoes.

Students will explore congruency and geometric transformations such as turns and flips as they make their decisions. Blackline is available for one inch grid paper. This activity is geometric problem solving.

Let's Find Out:

Create this graph as a class activity. Emphasize that the graph needs a title, and labels on both axes as well as accurate placement of data.

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.

- Fifteen doubled 50 - 5 + 2 - 10
- Number of wings on six birds. 4 tens and 18 ones
- What comes next ... 245, 235, 225, ____? 10 less than 500
- Value of 3 quarters, 2 dimes, and 2 pennies Number of days in November

Keeping Skills Sharp

- 7 2:15
- 5 one-fourth
- 53 517
- three, 10¢ 27



Fun with Multiplication

The Function Machine takes IN a number, changes it by a rule, and puts OUT the changed number.

Function Machine				
IN	2	3	4	5
OUT	4		8	

Fill in the missing numbers. What rule did the machine use?

(5.01, 1.03a)



Writing About Math

Make a list of items that are shaped like a cylinder. Classify the items on the list. How do you know each is a cylinder?

(3.01)



Let's Explore

Use cut out pentomino shapes. Predict which shapes will fold to make an open box. Test predictions by folding cut-out pentomino shapes. Record results.

On grid paper shade in a hexomino (made of six squares) that will fold into a closed box. Is there more than one answer?

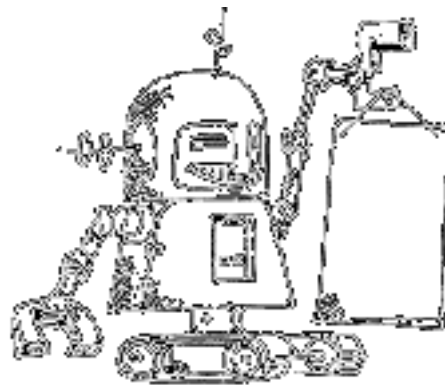
(3.01)



Seeing Math

Using your pentomino shapes, fit three together to make a rectangle.

How many solutions can you find?



(3.01)



Let's Find Out

How many three-dimensional shapes can you collect?

In groups of four, collect examples of three-dimensional shapes.

Figure out ways to classify your shapes.

Write rules. Share.

Explore nets by cutting your 3-D shapes.

Draw to record.

(4.01)

VALUABLE DIGITS !!



3861	7590	3546	2968	5371
7846	4289	1789	4709	6530
1527	6849	4285	3691	1824
3784	2968	1043	5976	4765
4095	3289	6453	7890	1289
5862	3724	5914	2639	6540

Players: Two - four

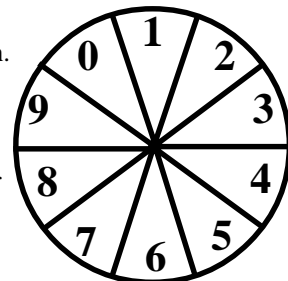
Materials: Spinner, paper clip, different game markers for each player, pencil, and paper.

Directions: Each player puts a marker on any number on the board. This is the starting space.

- In turn, each player spins the spinner.
 - A player can move one space in any direction (vertically, horizontally, or diagonally) but he/she must move to a space that contains the number shown by the spin.
- For example: If a player spins a “7” and the player’s marker is on 5976, the player can move to 7890. The score for that spin would be 7000 since the “7” is in the thousand’s place.

- If a player cannot move after his/her spin, the player should record no score for that spin.
- Players take turns until each player has five spins.
- Players total scores. High score wins.

Variation: Play for lowest score.



(1.01b)



Keeping Skills Sharp

- $\square + 7 = 15$
- $19 - \square = 5$
- $42 - 17 = \square$
- Erasers are 15¢ each. If you buy eight erasers and pay with quarters, how many will you need? How much change should you get?
- John gets up at 7:15. It takes him 10 minutes to get dressed, 15 minutes to eat breakfast, and 5 minutes to brush his teeth. What time will he be ready?
- Susie bought 3 yards of ribbon. How many feet of ribbon did she buy?
- Three thousands, four hundreds and eighteen ones.
- Mother bought four dozen eggs. How many eggs does she have?



Solve this!



A school cafeteria sells popsicles for 25¢, nutty buddies for 40¢, and ice cream cones for 30¢. If a student spent \$5 in the month of October for these treats, what could the student have bought? List as many combinations as you can find.

(1.06)

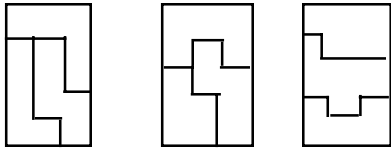
To the Teacher ..

Fun with Multiplication:

A Function Machine helps children see the relationship between the IN numbers and the OUT numbers as they read the number pairs. Help students focus on the operation (rule) rather than the ongoing pattern. (See Fun with Multiplication, week 9, where IN numbers are not in numerical order.)

Seeing Math:

Several solutions are possible. Students may also use commercially-bought pentominoes for this activity. This is geometric problem-solving.



Let's Explore:

Blacklines are available for these activities.

Solve This:

Some combinations include: 20 popsicles; 15 ice cream cones and 2 popsicles; 5 nutty buddies and 12 popsicles; 4 ice cream cones and 2 nutty buddies and 12 popsicles.

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.

$150 + 100$

$7 + 4 - 3 + 10$

Number of pencils in two dozen

Number of faces on two cubes

What comes next ... 280, 290, 300, ____?

Number of inches in a yard

Value of six dimes and two nickels

Number of weeks in most months

Keeping Skills Sharp

8

7:45

14

9 feet

25

3,418

five, 5¢

48



Fun with Multiplication

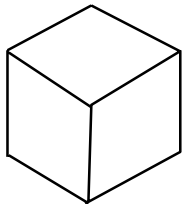
Use 12 squares (color tiles). Build all possible rectangles.

Record and label.

(3.01)



Writing About Math



Write everything you know about this figure.

(3.01)



Let's Explore

How many fingers are in your 3rd grade class?

How many fingers are in the entire 3rd grade?

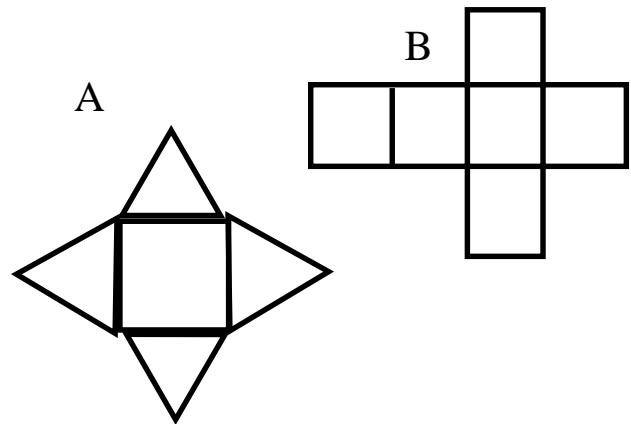
Estimate the number of fingers in the school.

Explain your thinking.

(1.03a, 1.03b, 1.06)



Seeing Math



Which solid figure can be made by folding each net?

(3.01)

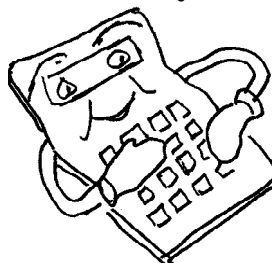


Let's Find Out

You can only push the 1, 0, = and + keys on your calculator. Your job is to make your calculator display 542.

Can you find other ways?

Write what you would push.



(1.01b, 1.06)

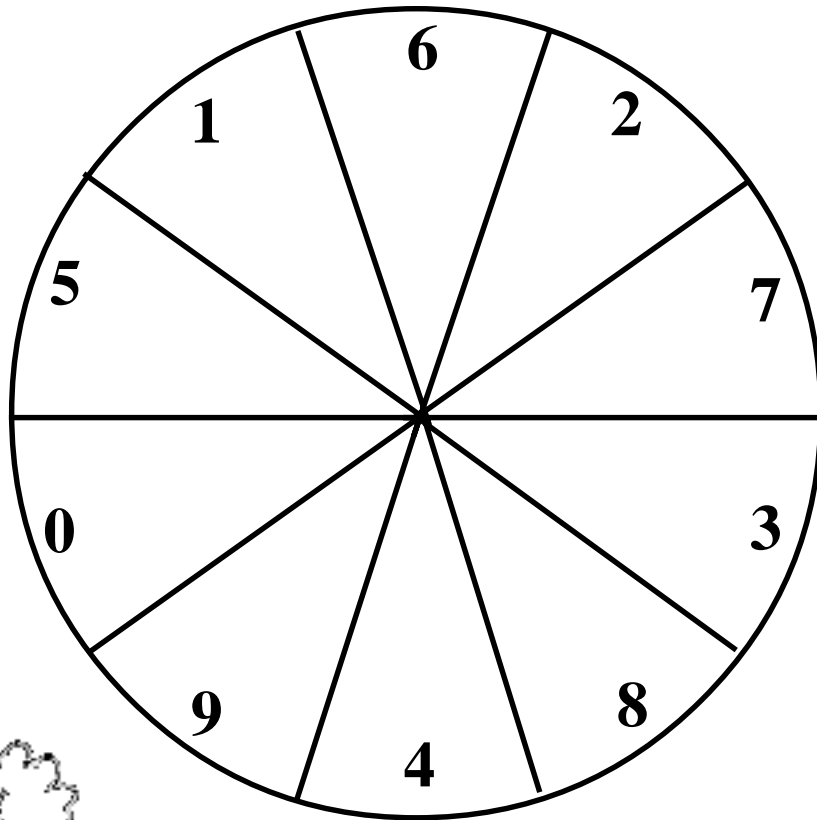
TAKE YOUR PLACES!

Players: Two to four

Materials: Spinner 0-9, pencil and paper clip for spinner. Recording sheet per player (see Blacklines), pencils, scrap paper

Directions:

1. First player spins, tells the number and says, "Take your places."
2. Each player writes the number on his recording sheet in any place. A number cannot be moved after it is written.
3. Players in turn spin and announce numbers for all players to place on their sheets. After five spins, the player with the highest number earns five points, the second highest number earns three points and the third highest number earns one point. Players write their earned points beside their round. Player with the highest score after six rounds wins.



(1.01b)



Keeping Skills Sharp

1. $\underline{\quad} + 9 = 19$ 2. $28 - \underline{\quad} = 13$ 3. $28 + 19 = \underline{\quad}$
4. How much more than \$1 is 6 dimes, 8 nickels and 12 pennies?
5. How many inches are in 3 feet?
6. Write these fractions in order from smallest to largest:

$$\frac{2}{3} \quad \frac{3}{4} \quad \frac{3}{6} \quad \frac{5}{8}$$

7. How many hundreds are in 1,963?
8. Jill's class has 26 children and 1 teacher. Her mother is buying popsicles for the class. The popsicles come in boxes of ten. How many boxes will her mother need to buy for the class?



Solve this!

If you start with a penny and get double the number of pennies each day for two weeks, how much money would you have on the fourteenth day?

If the pattern continues, on which day would you receive \$1000?



(1.03a, 1.06)

To the Teacher

Fun with Multiplication:

The rectangles the students build from the squares are examples of arrays. An array is an orderly arrangement of symbols or objects in rows and columns. Students can record their arrays on grid paper or by drawing. Label the rectangle with the dimension of the sides.

$$2 \begin{array}{|c|c|c|c|c|c|} \hline \square & \square & \square & \square & \square & \square \\ \hline \square & \square & \square & \square & \square & \square \\ \hline \end{array} \quad 2 \times 6 =$$

6

Blacklines are available for grid paper.

A 2 x 6 rectangle is the same as a 6 x 2 rectangle after rotation. (This illustrates the commutative property of multiplication quite well.)

Seeing Math:

A net is like a blueprint. It is a two dimensional model that when folded, results in a three dimensional figure. A related activity is to have students select a polyhedra to place on paper and trace each face as the polyhedra is flipped from side to side. This will result in a net for the polyhedra.

Let's Find Out:

One solution would be:	$111 + 111 = 222$	$100 + 100 + 100 + 100 + 100 =$
	$222 + 110 = 332$	$500 + 10 + 10 + 10 + 10 =$
	$332 + 110 = 442$	$540 + 1 + 1 = 542 =$
	$442 + 100 = 542$	

Children may solve differently by adding 1's together or 11's. While this would be acceptable as long as their final sum is 542, be sure to share the quicker method as listed above.

Writing About Math:

This open-ended activity will give much insight into the students knowledge of geometry.

Solve This:

This is an appropriate activity for calculators. On the 14th day, you should receive \$163.84. On the 17th day you would receive over \$1000.00.

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.

$50 + 35$

Number of centimeters in
2 meters.

Number of toes on ten feet

Four thousand forty-two

What comes next ... 174,
176, 178, ____?

100 less than 999

Change from two quarters if
you spend 45¢

Number of legs on six
insects

Keeping Skills Sharp

10

36 inches

15

$\frac{3}{6} \frac{5}{8} \frac{2}{3} \frac{3}{4}$

47

9

12¢

3