MathStars

★★   1.   Some numbers are missing. Write them on this number line:
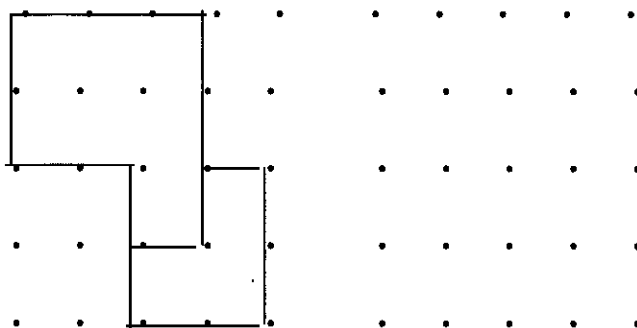
<-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---->
33   37   38   41   44
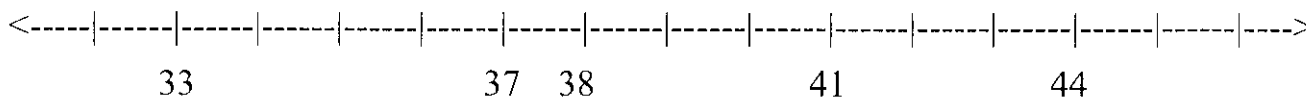
★★★   2.   What is the rule?

6--------------> 4
8--------------> 6
10-------------> 8
20-------------> 18

Rule:_____

★★   3.   Draw a figure just like this one:

Strategy of the Month

Someone said, "A picture is worth a thousand words." Turning the words of a problem into a picture or a diagram can help you "see" the problem. By using the part of your brain that visualizes a situation or object, you may see relationships or information that helps you solve the problem. When someone tells you a story, try turning the words into a motion picture or a cartoon. When reading a description, try "seeing it in your mind's eye." If you can do these things, this strategy may be for you! Try using a picture or make a diagram to solve this problem:

★   4.   Color the figure with the largest area:

On the playground there are three bicycles and four tricycles. How many wheels are there?

★★   7. How many paper clips long is the dotted line below?

■-■-■-■-■-■-■-■-■-■-■-■-■-■

About _____ paper clips.

★★★★   8. If all clothes with   and all buttons were here   clothes with zippers were here
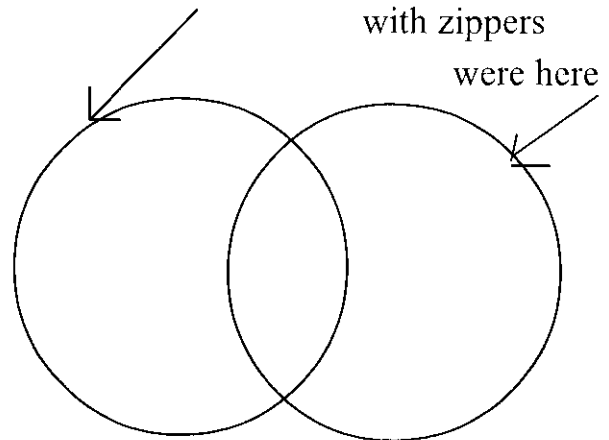
What would go in the middle?

_____

★★★   5. Place these sums in the correct column:

4 + 0	3 + 4	2 + 2
0 + 5	3 + 1	4 + 5
4 + 4	6 + 2	1 + 2

Less than 6   Greater than 6

★★   6. Jody saw a ladybug with eight spots. Draw a picture to show how many spots Jody would see on three ladybugs ?
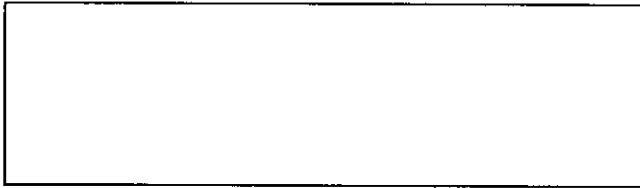
★★★ 1. Circle the expressions that equal 24: (You may use a calculator to help you.)

$$20 + 4 \quad 41 - 10 \quad 24 - 0 \quad 12 + 12$$

$$6 + 12 \quad 18 + 6 \quad 16 + 9 \quad 14 + 11$$

★★ 2. Cut a strip of cardboard the same length as this unit: ├ — — — ┤ . If it equals two, about how long and how tall is this rectangle?

across _____ units

up and down _____ units.

★★★ 3. What is the rule?

```
 6------------>11
12------------>17
20------------>25
50------------>55
```
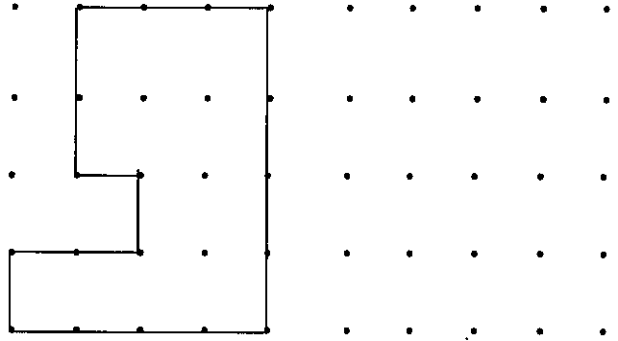
Rule: _____

★★★ 4. Chris had a roll of stamps worth six cents each. If there are ten stamps on his roll, how much is his roll of stamps worth?

_____

★ 5. Draw a figure just like this one:

Strategy of the Month

*Your brain is an organizer. It organizes information as it stores that information. When a problem involves many pieces of information, your brain will have an easier time sorting through it if you make an organized list. A list helps you be sure you have thought of all of the possibilities without repeating any of them. Like drawing a picture or making a diagram, making an organized list helps your brain "see" the problem clearly and find a solution. Try **making an organized list** to solve this problem:*

You have three pennies, two nickels and a dime. How many different amounts of money can you make?

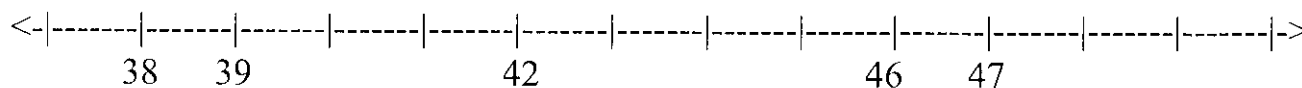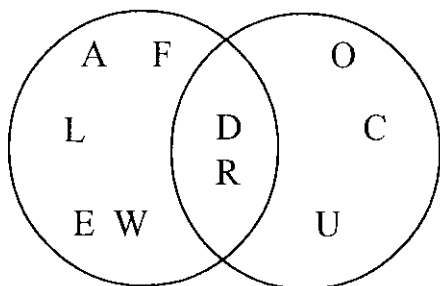★★★★ 8. If Frank has 12 cows in his pasture, draw a picture showing how many legs are on the 12 cows? Circle the answer that best matches your picture.

A. more than 60

B. less than 25

C. close to 100

D. between 40 and 50

★ 6. Some numbers are missing. Write them on the number line in the correct places.

```
<-|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|->
  38     39              42                      46     47
```

★★★ 7. Where do these letters belong in the diagram below? Q, T, K, P, S

A F
L   D
       R   C
E W   U
O

MathStars

★★★ 1. Place these expressions in the proper column:

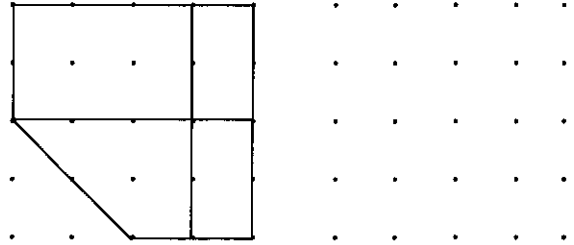| 6 + 6 | 12 + 7 | 12 + 2 | 8 + 9 |
| 4 + 7 | 6 + 17 | 8 + 15 | 10 + 4 |
| 14 + 6 | 9 + 10 | 21 + 2 | 5 + 8 |

Less than 18	Greater than 18

★★★ 3. Draw a figure just like this one:

★★★ 4. Maegen uses four blocks to build a house. If she builds a town with six houses, how many blocks will she need?

★★ 2. Guess how many beads there are in the necklace. Check your answer by counting.

_____

Strategy of the Month

Being a problem solver is something like being a detective! A detective has to solve crimes by guessing what happened and checking the guess to see if it fits the situation. For some problems, your best strategy may be to make a guess and then check to see if your answer fits the problem. If not, decide if your guess was too high or too low and then make a second "guesstimate." A good detective keeps records (usually some kind of chart) to help see any patterns and to narrow down the possibilities. You should do this too. The results of incorrect guesses can give you valuable clues to the correct solution. **Guess and then check** *the solution to this problem:*

Billy has 42 marbles to put in boxes. Each box will hold five marbles. How many boxes will he need?

★★★★   5.

If you put all shoes with laces here ↘

and put all shoes with velcro here ↙
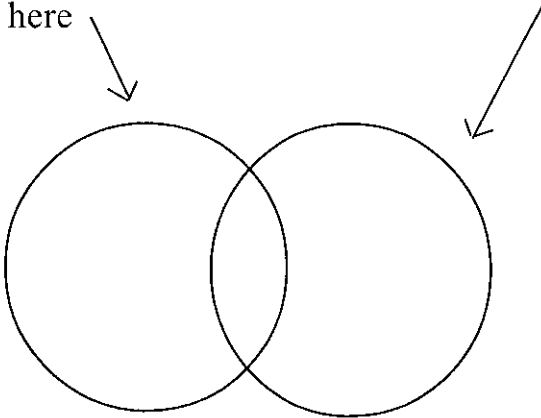
What would belong in the middle?

_____

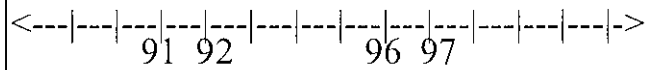★★★   6. What is the rule?

```
4--------------> 1
8--------------> 5
36--------------> 33
50--------------> 47
```

Rule:_____

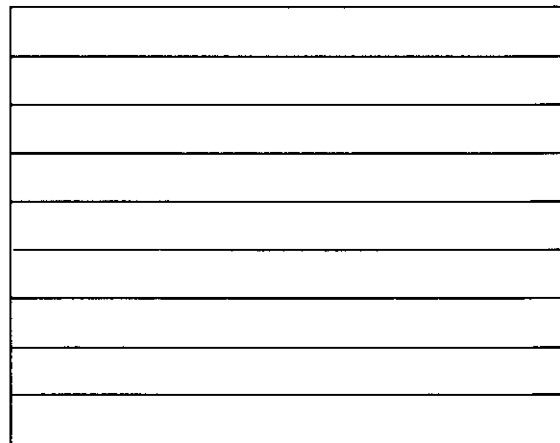★★   7. Some numbers are missing. Write the missing numbers on the number line in the correct places.

<---|---|---|---|---|---|---|---|---|---|---|---|---|->
        91 92   96 97

★★★★   8. After rolling a number cube 20 times, Taylor has collected this information:

```
1 - \\\
2 - \
3 - \\\\\
4 - \\
5 - \\\\ \
6 - \\\
```

Help her make a graph with it.

★ 1. How many dots are needed to make the dominoes equal?

★★ 2. Follow the path to find the answer:

$$6 + 5 - 4 + 2 = \bigcirc$$

★★★ 3. You have a quarter and loan ten cents to a friend. What are the different ways you can show the money you have left?

★★★★ 4. Connect the points to make a shape that has four sides and four corners.

★ 5. Continue the pattern:

A, M, A, A, M, A, A, A, M, ____, ____, ____, ____, ____
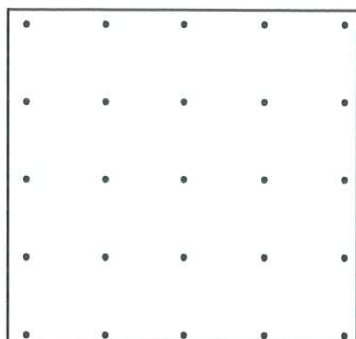
Strategy of the Month

*Noticing patterns helps people solve problems at home, at work, and especially in math class! Math has been called "the study of patterns," so it makes sense to look for a pattern when you are trying to solve a problem. Recognizing patterns helps you to see how things are organized and to make predictions. If you think you see a pattern, try several examples to see if using the pattern will fit the problem situation. Looking for patterns is helpful to use along with other strategies such as make a list or guess and check. How can **finding a pattern** help you solve this problem?*

How many different rectangles can you find in the figure on the left?

★★ 7. Jane gets home from school at 3:00. She begins her homework at 5:00. How much time does she have to play before she begins her homework?

_____

★★★ 8. Use your calculator to find:

a. How many two's are in 18 ? _____

b. How many fives's make 30? _____

c. How many four's make a dozen? _____

★★ 6. On a trip to the beach you see a group of starfish. There are six in the group. How many arms do you count?

starfish	1	2	3	4	5	6
arms	5		15			

★ ★ ★ 1. This puzzle piece was cut from a hundred board. Fill in the missing numbers:

36		38
56		58

★ 2. How many flowers do not have pots?

★ ★ ★ ★ 3. In January, Mrs. Clark's class read ten books. In February they read two more than in January. If this pattern continues, how many books will they read in April?

★ ★ 4. Don wants to buy an eraser at the school store. If erasers cost 14 cents and he pays with two dimes, what coins could he receive in change?

Strategy of the Month

*Sometimes mathematical ideas are hard to think about without something to look at or to move around. Drawing a picture or using objects or models helps your brain "see" the details, organize the information, and carry out the action in the problem. Beans, pennies, toothpicks, pebbles, or cubes are good manipulatives to help you model a problem. You can use objects as you guess and check or look for patterns. Try **using objects** to help you solve this problem:*
A factory has wheels for go-carts and scooters. If they have 18 wheels, how many of each can they make? Is there more than one answer?
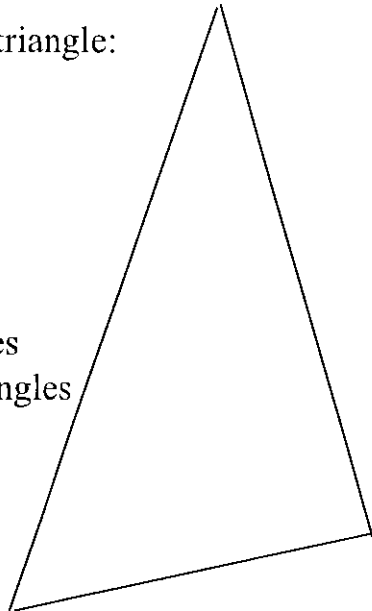
★ ★ ★ 5. What are the next three numbers in this series?

77, 66, 55, 44, 33, ___, ___, ___

★ 6. This is a triangle:

How many sides would four triangles have?

_____

Use the calendar to answer these questions:

NOVEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

★ ★ ★ ★ 7. (a) Jane's birthday is the 3rd Sunday in November. What date is her birthday?

_____

(b) She is having a birthday party on November 20. What day of the week is her party?

_____

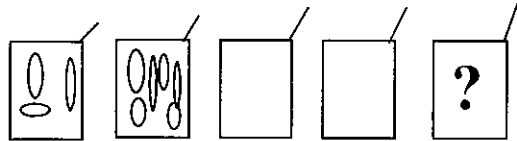(c) She will mail her invitations two weeks before the party. What date will she mail the invitations?

_____

MathStars

★ ★ ★ ★ 1. The first box has three balloons, the second box has six balloons. If this pattern continues, how many ballons will be in the fifth box?
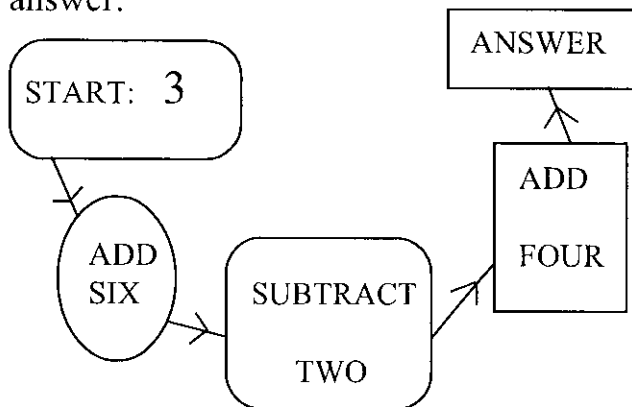
★ ★ 2. How tall do you think eight apples would be?

_____More than a foot

_____Less than a foot

_____Exactly a foot

★ ★ 3. Follow the directions to the answer:

START: 3 → ADD SIX → SUBTRACT TWO → ADD FOUR → ANSWER

★ ★ ★ 4. How many wheels arc on four tricycles and three bicycles?

Strategy of the Month

*When a problem involves data with more than one characteristic, **making a table, chart, or graph** is a very good way to organize the information. It helps your brain to identify patterns and to discover any missing data. Tables help you record data without repeating yourself. Making a table or chart is especially useful for certain problems about probability and for some logic problems. Sometimes tables and charts are included in your information and you need to read through them carefully to understand the data you need to solve your problem. Creating a graph is also a good way to organize and visualize information. **Make a table** to solve this problem:*

Loni has red, blue, green and yellow markers. She is coloring the stripes on the new soccer team flag. How many different flags can she color?
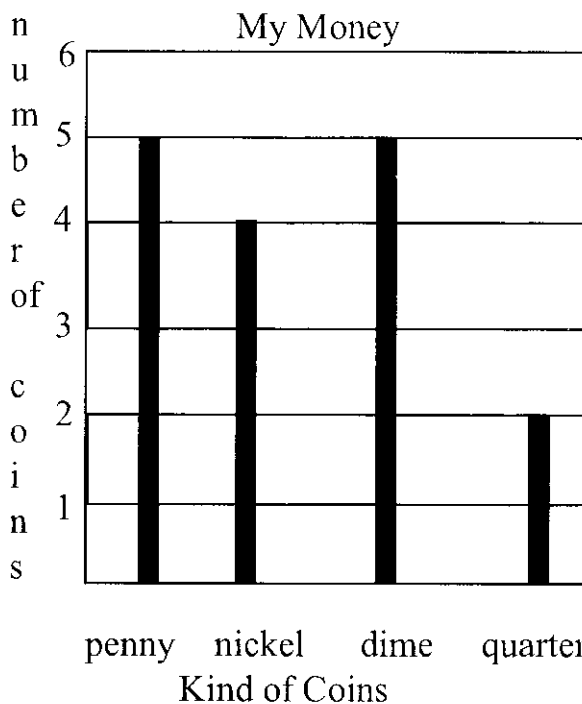
★ ★ ★ ★ 5. Twelve animals are swimming in the pond. There are twice as many ducks as there are frogs.

How many ducks are in the pond? _____

How many frogs are in the pond? _____

Hint: What two numbers add to 12?

★ ★ ★ ★ 6. Bill made a graph of the coins he had in his pocket.

My Money

number of coins

	6
	5
	4
	3
	2
	1

penny   nickel   dime   quarter
Kind of Coins

How much money does he have in:

a. pennies _____

b. nickels _____

c. dimes _____

d. quarters _____

7. How much does he have to spend?

_____

★★ 1. Find the first number for the flow-chart:

?? → +5 → +2 → +4 → 15
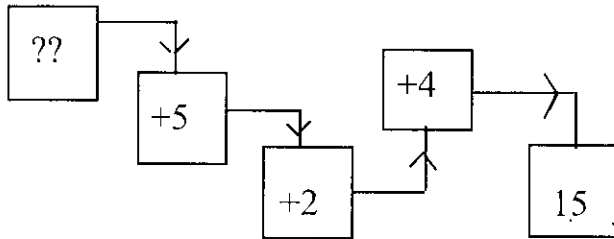
★★★★ 2. Curly, Flipsy, Fuzzy and Topsy are sitting in a row. Topsy is first. Fuzzy is last. Curly is between Topsy and Flipsy. Who is in the third seat?

★★ 3. What numeral is shown?

ones hundreds tens
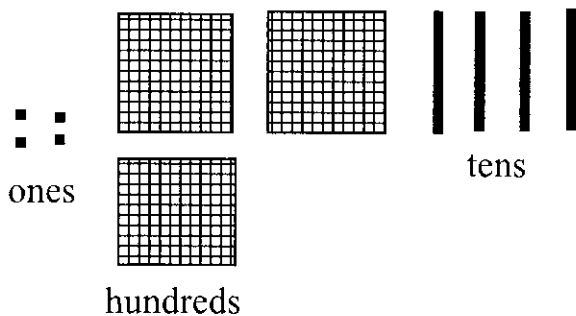
★★ 4. A waiter brought a pitcher of water to a table of six persons. Each person filled his glass and the pitcher was empty. If each glass holds 4 ounces, how much water was in the pitcher at the start?

★★★★ 5. There are six puppies in the yard. How many tails, ears and legs are in the yard? Fill in the chart below to help you find the answers.

Tails_____   Ears _____   Legs _____

Dogs	Tails	Ears	Legs
1			
2			
3			
4			
5			
6			

Strategy of the Month

*Some problems are difficult to "see" even if you draw a picture. For these problems, it can be helpful to actually **act out the problem**. When you role-play with friends or people at home, you may discover the solution as you act out the problem. Or you may recognize another strategy that will help you find the answer. Sometimes "acting out" a problem can be done with manipulative materials. To find the solution to the problem below, become the director and choose your cast to act this out:*

Freddy Frog is at the bottom of the stairs. He can move up three steps each time he hops. The pool is at the top of the stairs. If Freddy Frog hops five times before he is in the pool, how many stairs are there to the pool?

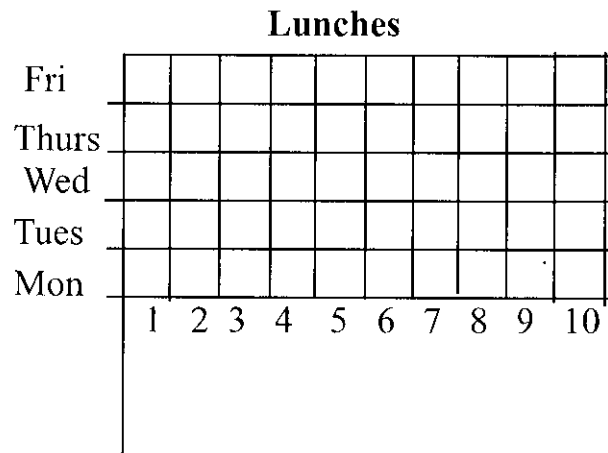★★★★ 8. Complete the graph to show the lunch count for Mr. Scott's class.

On Monday, four students brought their lunch.
On Tuesday, two more than on Monday brought their lunch.
On Wednesday, three less than on Tuesday brought their lunch.
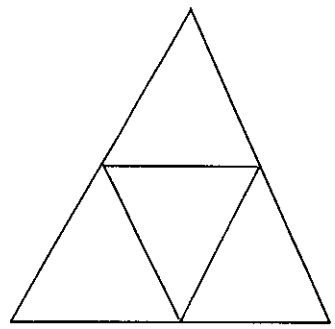On Thursday, two more than on Wednesday brought their lunch.
On Friday, three more than on Thursday brought their lunch.

★★ 6. Jody is trying to estimate the number of marbles in a jar. Use these clues to help him make a good guess:

(1) there are more than 44 marbles.

(2) there are fewer than 50 marbles.

(3) there is an even number of marbles.

How many marbles should Jody guess?

Lunches

★★ 7. What number will make this statement true?

$$7 + 6 = \boxed{} + 9$$

★ 1. How many different triangles are there in the diagram below?

_____ triangles

★★ 2. Robin Bird loves to eat worms. The chart below shows how many he ate in three days. If the pattern continues, how many will he eat on the eighth day?

Day	1	2	3	4	5	6	7	8
Worms	2	4	6					

★ 3. Ben's bus picks him up at 7:30 each morning. He arrives at school at 8:00 and the bell for class rings at 8:30. How many minutes does the bus ride take?

_____

★★★★ 4. Tamisha has 20 cents to spend at the school store. She wants to buy some candy to share with her friends. What can she buy?

Gummy Bears 5¢

Gum 3¢

Cherry Pops 7¢

Chocolate Bar 8¢

_____

_____
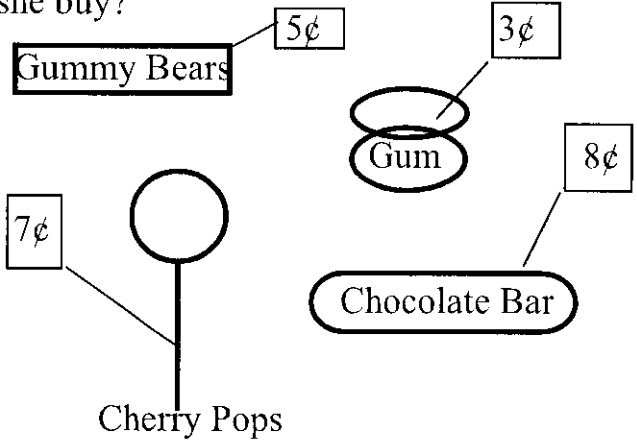
Strategy of the Month

What do you do if you have a problem that seems to be very complicated? It may have lots of large numbers, too much information, or multiple conditions. One approach is to create a simpler problem like the one you need to solve. As you solve the easier problem, you may see the way to solve the more difficult one. Or you may discover a different process that will work with the harder problem. The trick is to be sure that your simpler problem is enough like the original one that the patterns or process you use will help you with the harder situation. **Make a simpler problem** *first as you solve this:*

Six soccer players will shake hands before the game begins. How many handshakes will there be? {Suppose there are only three players; four players.}
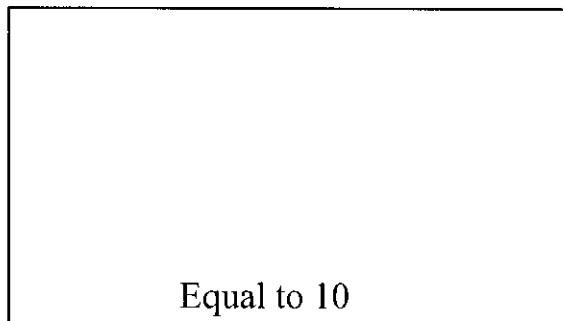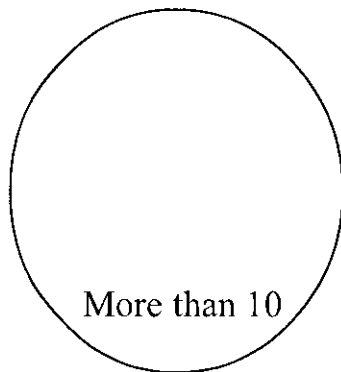
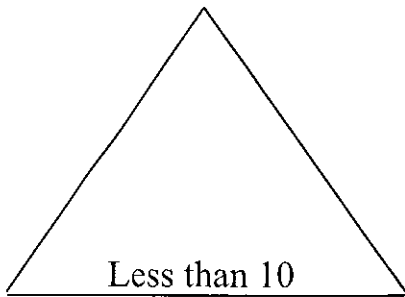★★ 5. Place the number facts in the correct shape:

6 + 4	5 + 4	6 + 6	9 + 5
2 + 8	1 + 9	3 + 4	8 + 3

Less than 10

More than 10

Equal to 10

★★★ 6. Estimate how many steps it takes to walk from your bedroom to the kitchen. Then carefully count the number of steps you actually take. Would this be the same for everyone in your family? Why?

Estimate for you_____

Number you actually walked_____

Who takes more steps?_____

Why? _____

_____

★ 7. Write the numeral for:
six tens + two ones + two hundreds
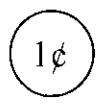
_____

★ 8. How many days are in two weeks?

_____

MathStars

★★★ 1. Toss a penny in the air 20 times and let it land flat.

Mark on the chart each head and tail.

(1¢)

Heads	Tails
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
Total:	

★★ 2. Six birds have built their nests. Four birds laid three eggs each and two birds laid four eggs each. How many eggs in all?

★★ 3. If a = 1¢, b = 2¢, c = 3¢, and so on, what is the value of your first name?

4. In your pocket you have two dimes, one nickel and two pennies. Your friend has one dime, three nickels and five pennies in his pocket.

My pocket: Friend's pocket:

_____¢   _____¢

Who has more money, you or your friend?

How much more?

Strategy of the Month

*What if you know the result of a situation, but you don't know the beginning? For example, you might know that you end up with thirteen baseball cards after doing a certain number of trades and you want to figure out how many cards you had before the trading started. In that case you need to work backwards; you have to think about your actions in reverse order. This strategy works for any sequence of actions when you know the end result rather than the starting place. Try **working backwards** to find the starting number on this flow chart:*
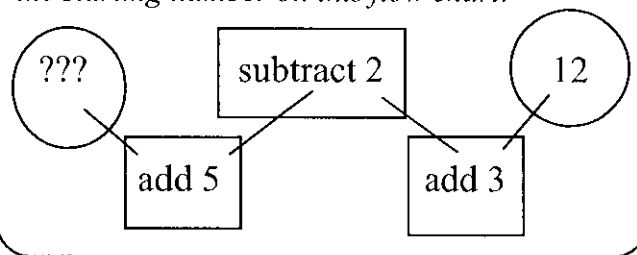
??? → subtract 2 → 12
add 5   add 3

★★ 5. What number am I?
   I am greater than nine.
   I am less than 7 + 6.
   I am an odd number.

★★★ 6. Put the numbers in the boxes where they belong.

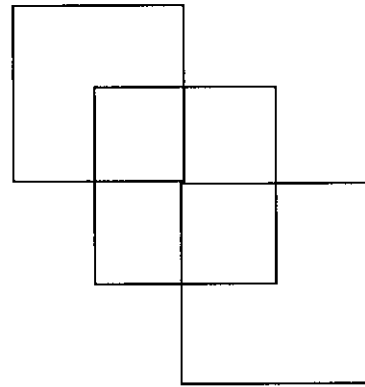[Hint: two numbers will not belong in any box.]

6, 28, 51, 33, 48, 59, 14, 66, 8, 73, 25, 82, 38, 17, 96

Greater than 52

Less than ten

Greater than 12
and less than 39

★ 7. How many squares are in this picture?

_____squares

★★★ 8. This puzzle piece was cut from a hundred board. Fill in the missing numbers.

25		
	36	
45		
	67	

★★★ 1. Bob and his mother went shopping. These are the bills:

```
Store A

‗‗‗‗‗
‗‗‗‗‗

$13.00
```

```
~~Store B~~
‗‗‗‗‗‗‗
‗‗‗‗‗ $20.00
```

```
***Store C***
‗‗‗‗‗
‗‗‗‗‗ $15.00
```

```
Store D
‗‗‗
‗‗‗
‗‗‗
$18.00
```

Can you figure out what they bought?

Prices:

Shirts $8.00	Pants $12.00
Shoes $10.00	Caps $5.00
Belts $4.00	Jackets $16.00

Store A _____

Store B _____

Store C _____

Store D _____

★ 2. Fill in the missing number:

$$9 + 12 = \boxed{} + 10$$

★★★ 3. Grandma made four peach pies. She used six peaches for each pie. How many peaches did she use?

★★★★ 4. The neighborhood pool opens at 2:00. You arrive at 2:30. How long can you swim before the pool closes?

```
Pool Hours:
2 - 4 daily
```

_____

Strategy of the Month

*You have tried many ways to solve problems this year. Already you know that when one strategy does not lead you to a solution, you back up and try something else. Sometimes you can find a smaller problem inside the larger one that must be solved first. Sometimes you need to think about the information that is missing rather than what is there. Sometimes you need to read the problem again and look for a different point of view. Sometimes you need to tell your brain to try to think about the problem in an entirely different way - perhaps a way you have never used before. Looking for different ways to solve problems is like brainstorming. Try to solve this problem. You may need to **change your point of view** .*

Mrs. Gomez is planning a party. She needs seating for 26 people. She can use hexagon tables for six guests and square tables for four guests. She would like to use more hexagon tables than square tables. How many of each does she need?

★★ 5. Three friends went fishing. Juan caught five fish, Betty caught twice as many as Juan and Darryl caught seven. How many fish did the three friends catch?
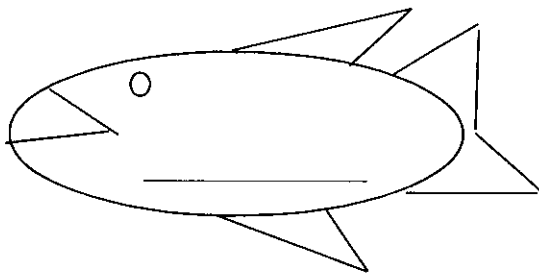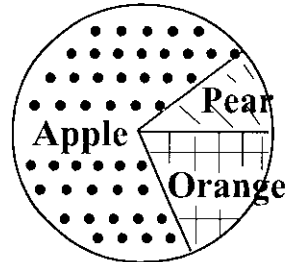

★ 6. Circle the letters that have a line of symmetry:

R   D   H

S   W   Y

★★★ 7. Mr. Allen's class made a graph to show their favorite fruit. Look at the information on the graph. Then decide whether the following statements are true or false.

a. More students like apples.
                    true or false

b. More students like pears than oranges.
                    true or false

c. More students like pears and oranges than apples.   true or false

d. Over half the class prefers apples.
                    true or false

★★ 8. Three students bring "Show and Tell" on Monday, five students on Tuesday, seven students on Wednesday. If this pattern continues, how many students will bring "Show and Tell" on Friday?

_____