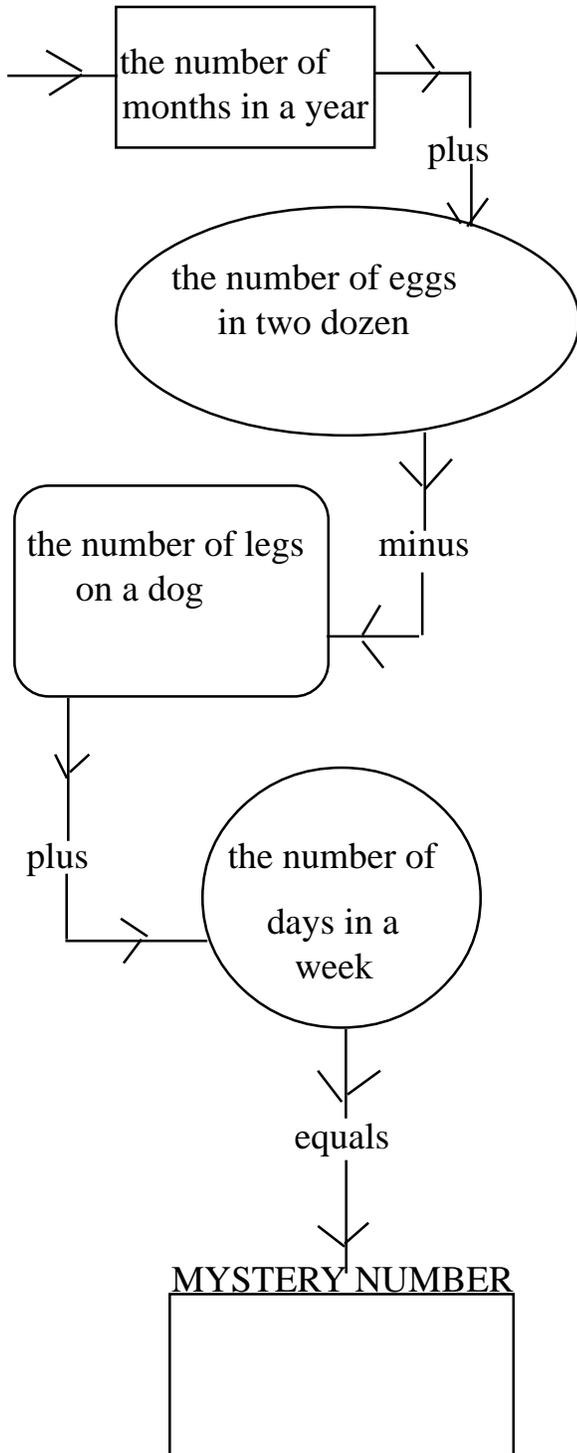
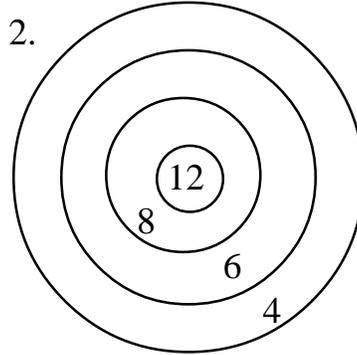


★★★ 1. Follow the flowchart to the mystery number:



★★★ 2.



Allen and Joe each threw three darts at the target.

Allen's score was 18; Joe's score was 14.

Allen landed on ____, ____, and ____.

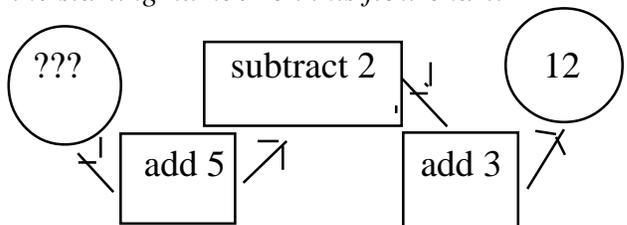
Joe landed on ____, ____, and ____.

Did Joe or Allen hit the bull's eye? _____

How do you know? _____

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:



MathStars Home Hints

Mathematics can make life easier for you when you become a good estimator. Spatial estimation helps you plan how you will rearrange your furniture or how far to jump to cross a puddle of water. Using estimation helps you know whether you have enough money for your purchases before you get to the check-out line. We become good estimators by practicing. Use your number sense and spatial sense to think about what the answers to problems will be before you start to solve them.

★★★ 3. Brad has 45¢ in his pocket. He counted eight coins. What coins did he have?

★★ 4. Pete is at the end of the ice cream line. Katie is between Ron and Jane. Ron is behind Paul. Write the names of the students in the ice cream line.



first second third fourth fifth

★★★★ 5. Tommy Turtle and Robby Rabbit are training for the big race. Tommy can go four feet in three minutes. How far can he go in a 15 minute race?

Robby can go seven feet in five minutes. How far can he go in a 15 minute race?

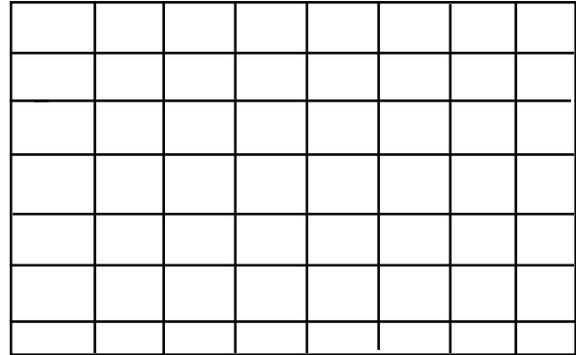
Who will win the race ? _____

★ 6. Nora looked at a spider web with her magnifying glass. She counted 24 spider legs. How many spiders were on the web?

★ 7. Sally surveyed her friends about their pets. Here are the results:

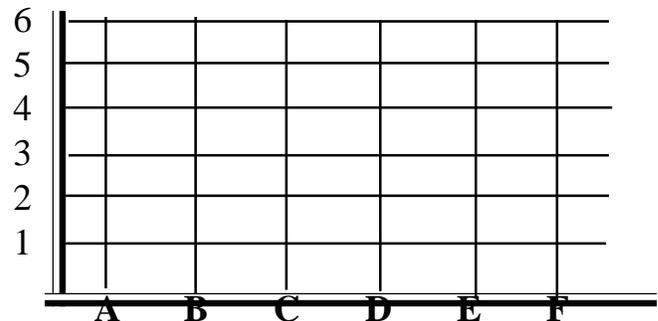
dogs 4
cats 1
fish 2
birds 3

Make a bar graph of the results.



★★★★ 8. Anna designed a secret picture. She listed clues to help solve the mystery. Can you connect the points and discover her secret picture?

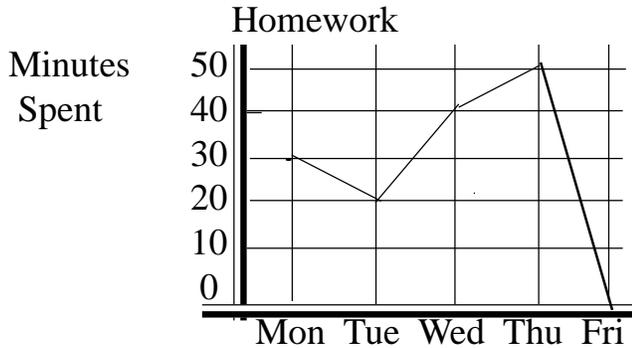
A,2 -> C,5-> E,2 -> A,4 -> E,4-> A,2



Setting Personal Goals

When you encounter a new situation, you use all of your previous experiences to figure out the current problem. Reasoning mathematically means using your brain power to think logically and sequentially, to put prior knowledge with new information. Set the goal of developing mathematical power and use your thinking power to achieve the goal!

★★ 1. Robert made a broken line graph to show how much time he spent on homework last week.

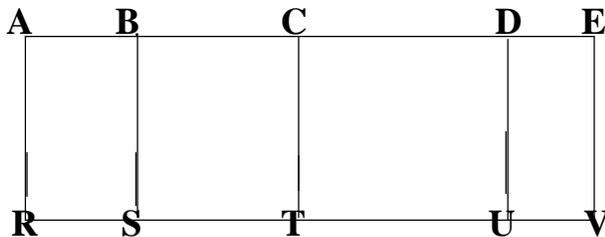


Which night did Robert spend the longest on his homework? _____

Which night did Robert spend the least time on homework? _____

How much time did Robert spend on homework during the week? _____

★★★ 2. How many different rectangles can you find in this shape? _____



Can you name them? _____

★★★★ 3. Lee and his five friends are hungry for a snack. Circle the number of cookies his Mom needs to bake for all the children to have an equal number of cookies.

- 10 14 16 18 20

★★ 4. Mrs. Hill dumped a load of clean socks on the table and sorted them into piles. She had four brown socks, three green socks, five black socks, and five blue socks.

How many pairs of socks can she put in the dresser? _____

Which socks were lost? _____

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 solve 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 solves 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?

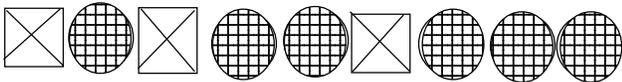
MathStars Home Hints

Identifying the mathematics that is all around you can be lots of fun. Think about the geometry and spatial visualization you use in playing video games or when you play golf or basketball. When your parents parallel park, they are using their spatial skills too. When you track a hurricane, you use coordinates. When you check the stock market or read the latest sports statistics, you are using mathematics. With your family or friends go on a math scavenger hunt. Who can identify mathematics in the most unusual places?

★★ 5. Terry's kitten was playing with a ball of yarn. How many centimeters long is the piece of yarn unrolled from the ball?



★★ 6. What are the 21st, 22nd, and 23rd shapes in this pattern?



★★★ 7. Riders and horses are in the field. There are 32 legs in the field. The number of riders is one more than the number of horses. How many horses and riders are in the field?

horses _____ riders _____

★★★★ 8. Six rabbits had a race. Peter and another rabbit tied for second place. Pokey came in last. Flopsy was ahead of Cottontail. Cottontail beat Hopper. Mopsy was beaten by only one other rabbit.

Who won the race?

Show the order in which they crossed the finish line:

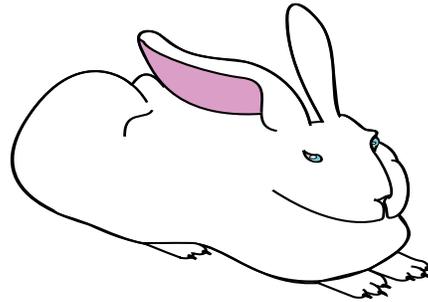
First: _____

Second: _____ and _____

Third: _____

Fourth: _____

Fifth: _____



Setting Personal Goals

Students who recognize the value of mathematics are well on their way to becoming mathematically powerful citizens. Valuing mathematics means that we appreciate the richness, power, and usefulness of mathematics. Without math there would be no roads or bridges, computers or movies, banks or fast food restaurants. How can you become mathematically powerful?

★★ 1. Fred buys a pencil for 30 cents. Sheila pays with 2 quarters. How many different ways can Sheila get money back? Answer _____. List all of the ways below.

★★ 2. Examine the letters below. Which are symmetric? Draw all lines of symmetry on the letters that are symmetric.

E N S X

★★★ 3. Jason, Trini, and Billy are arguing over who will be first, second, and third in line for lunch. How many different ways can they line up?

★★★ 4. Take a sheet of paper. Fold it in half. Without opening up the sheet of paper, fold it in half again. If you opened up your sheet of paper now, how many sections would there be? Open up your sheet to check out your answer! Repeat this process several times, each time adding one more fold to your sheet of paper. Do you see a pattern?

<i>Number of Folds</i>	<i>Number of Sections</i>
0	1
1	2
2	
3	
4	
5	
6	

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:

Every bike slot in a bicycle rack was filled. Donna's bike was in the middle. There were six bikes to the right of Donna's. How many bicycles were in the bicycle rack?

MathStars Home Hints

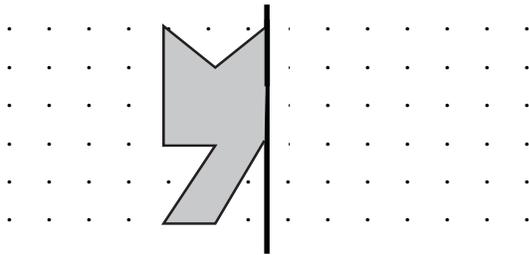
Every year you grow and change in many different ways. Get someone to help you measure and record these data about yourself.

How tall are you? _____

How much do you weigh? _____

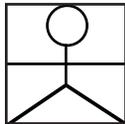
What is the circumference of your head?

- ★★ 5. Draw the flip of the shaded figure to create a symmetrical shape.

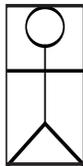


- ★ 6. Are you a square? Measure yourself to find out! You may have a friend mark your height and arm span, but be sure you do the measuring! Please use centimeters.

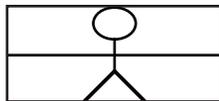
SQUARES HAVE EQUAL HEIGHTS AND ARM SPANS.



TALL RECTANGLES HAVE HEIGHTS THAT ARE LONGER THAN ARM SPANS.

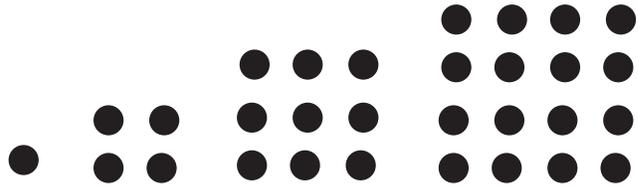


SHORT RECTANGLES HAVE ARM SPANS THAT ARE LONGER THAN THEIR HEIGHTS.



I am a _____ because my height is _____ centimeters and my arm span is _____ centimeters.

- ★★ 7. How many dots are in the next square in this sequence?



- ★★ 8. How many students are in Mrs. Lander's class? _____
What fraction of students in Mrs. Lander's class have birthdays in June? _____

In which month were you born?

			X									
	X		X		X				X	X		
	X	X	X		X			X	X	X		
X	X	X	X	X	X	X	X	X	X	X	X	X
January	February	March	April	May	June	July	August	September	October	November	December	

Put an X where you belong.

Setting Personal Goals

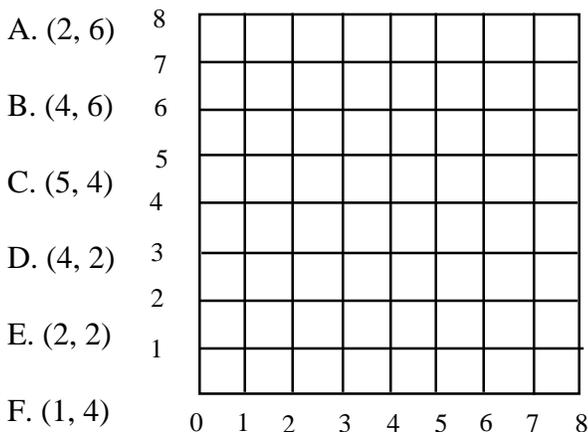
Problem solving is what you do when you don't know what to do. Being a good problem solver will help you be ready to live and work in our changing world. Computers can do computations but people must tell the computers what to do. Good problem solvers know how to make plans and use many different strategies in carrying out their plans. They use all of their past experiences to help them in new situations. We learn to swim by getting in the water; we learn to be good problem solvers by solving problems!

★★ 1. What part of the M&M'S are not orange?

red	3
orange	12
green	5
yellow	9
blue	6
brown	12
light brown	2

Answer: _____ out of _____ are not orange.

★★★ 2. Graph the ordered pairs on the coordinate grid. Connect the dots to make a pattern block. You will need to connect A and F. What is the pattern block that you made?



★★ 3. Roger is a very busy boy. He spends two weeks at basketball camp, one week at church camp, one week at grandma's house, and three weeks at summer camp during his ten week vacation. Estimate how many days he spends at home on his summer vacation.

Answer: _____ days at home on summer vacation.

★★★★ 4. There once was a dog who had two fleas, and on each flea there were three hairs, and on each hair there were four mites. How many mites were on the dog? _____

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:*

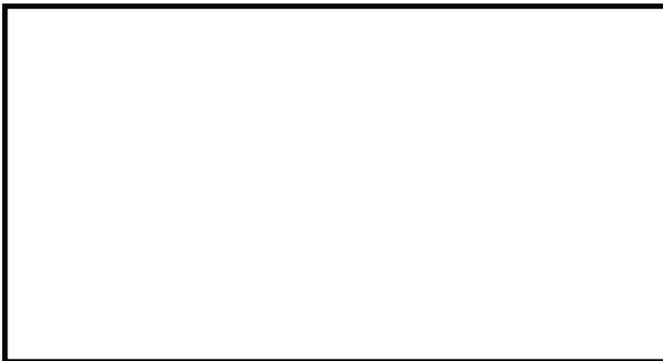
If you must use 15 or fewer coins, how many different combinations of coins can be used to make \$1.00?

MathStars Home Hints

Sometimes the hardest part of solving a problem is just getting started. Having some steps to follow may help you.

1. Understand the information in the problem and what you are trying to find out.
2. Try a strategy you think might help you solve the problem.
3. Find the solution using that strategy or try another way until you solve the problem.
4. Check back to make certain your answer makes sense.

- ★★★★ 5. Mr. Gordon has opened a ball shop. Make a pictograph that shows four volleyballs, six soccer balls, four more basketballs than soccer balls, and five more baseballs than volleyballs. Make each picture equal two.

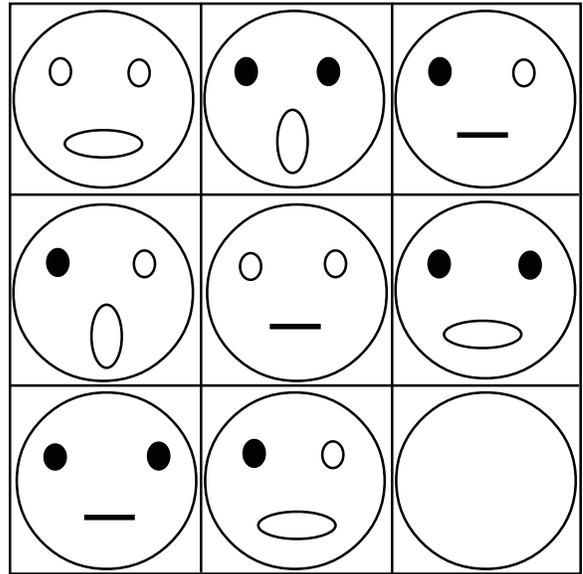


Basketballs Baseballs Volleyballs Soccer balls

- ★★ 6. Harriet plays baseball. She gets four chances to bat. She hits a home run each time she bats. In your head, count how many bases she has to step on to get credit for all home runs.

Answer: _____ bases

- ★★ 7. Draw the face that is missing from the box.



- ★ 8. A dove has two wings. In your head determine how many wings are on ten doves; how many wings are on twenty doves.

Answer: _____ wings on ten doves
and _____ wings on twenty doves.

- ★★ 9. Mr George's class of 26 goes to the gym to play kickball. There are 11 people on a team and four students decide not to play. How many teams can Mr. George's class form?

Answer: _____ teams

Setting Personal Goals

Being able to ask good questions will help you in many ways. Use these to solve problems:

- What information do I know?
- What else do I need to find out?
- What question am I trying to answer?
- Have I missed anything?
- Does my answer make sense?

Set the goal of asking good questions!

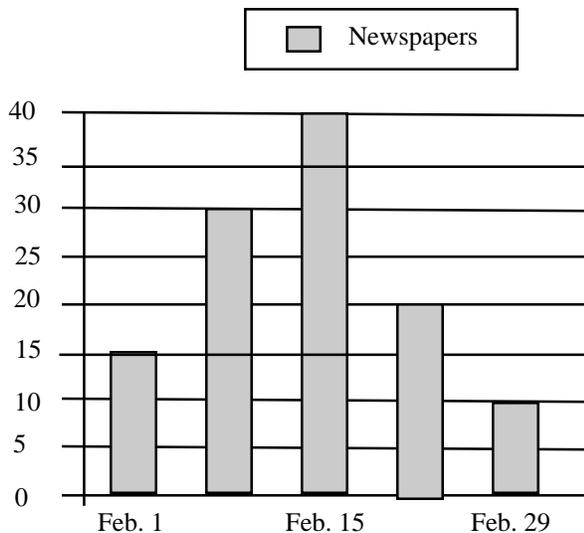
★★★ 1. The Tuttle family went to Sci-zone and bought passes for each show. They spent exactly \$20.00. How many passes could they buy? For which shows?

- \$4.00 Planetarium
- \$3.00 Holograms
- \$6.00 Dinosaurs

★★ 2. The horizontal or vertical distance between two dots in the diagram below is one linear unit. Create a shape that has a perimeter of 12 linear units. (Remember to only use horizontal or vertical lines, diagonal lines are not allowed!)



★ 3. Julie collected newspapers to recycle on Feb. 1 and Feb. 15. How many newspapers did she collect? Answer: _____



★★★★ 4. In the story Ramona Quimby, Age 8, Ramona is eight years old. If the copyright date on the book is 1971, how old is Ramona today?

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:*

I am a 2-digit number over 50. When you put me in groups of 7, 2 are left over. The sum of my digits is 11. What number am I?

MathStars Home Hints

Memorizing number facts will save you time. Flash cards are one way to learn new facts, but you also might try these ideas:

- play dice or card games in which you need to add, subtract, multiply, or divide.
- learn new facts using ones you already know ($7+7=14$ so $7+8=15$).
- learn facts that are related to each other ($7 \times 6=42$, $6 \times 7=42$, $42 \div 6=7$, $42 \div 7=6$).
- make a list of the facts you need to memorize and learn 5 new facts each week.
- Spend 5-10 minutes every day practicing facts.

★★★ 5. At Toys-R-Us you bought an action figure for \$3.98. Tax was twenty cents. If you paid for your purchases with a five dollar bill, what coins could the clerk use if she wanted to use the fewest number of coins possible in returning your change?

★★ 6. FUNCTION MACHINE!

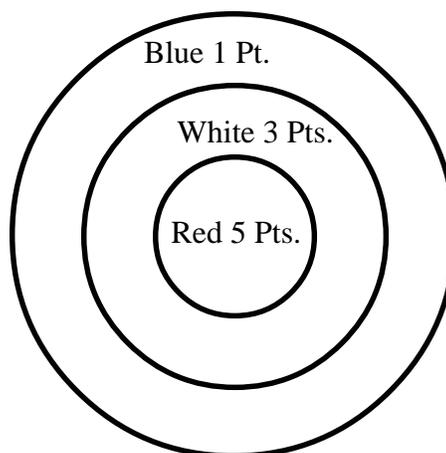
When you put a number in the function machine, it does something to it, and then spits out the changed number! The table of the left shows the numbers that went into this function machine, and the changed number that came out.

<u>IN</u>	<u>OUT</u>
2	4
3	9
4	16

- A. If I put five into the function machine, what number will come out? _____
- B. What does this function machine do to a number that you put in it? _____

★★★ 7. Molly, Emed, and Brian were practicing archery. The chart below is a record of what each person shot. If an arrow in the red zone is worth five points, and arrow in the white zone is worth three points, and an arrow in the blue zone is worth one point, which child had the highest score? _____

STUDENT	RED	WHITE	BLUE
MOLLY	3	4	2
EMED	2	5	3
BRIAN	4	0	4



★★ 8. If you drop a penny on the floor and it spins around on its edge, what solid shape does it look like?

- Circle one: CYLINDER
 SPHERE
 CONE

Setting Personal Goals

Communicating mathematically means that you are able to share your ideas and understandings with others orally and in writing. Because there is a strong link between language and the way we understand ideas, you should take part in discussions, ask questions when you do not understand, and think about how you would explain to someone else the steps you use in solving problems.