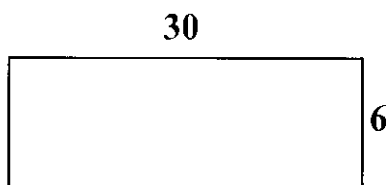


★★★ 1. How many 2's must be multiplied together for the product to be a number between 100 and 200?

Answer: _____

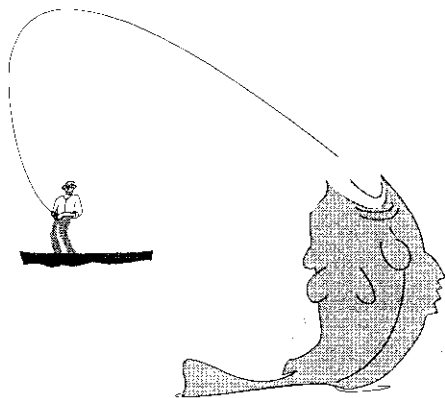
★★ 2. How many 2 x 5 tiles are needed to cover this floor?



Answer: _____

★★ 3. At 9:00 a.m., I went to the Ol' Fishin' Hole to fish. There is a three fish per hour limit. If I need 20 fish for a cook-out tomorrow, at what time will I probably have my 20 fish?

Answer: _____



★★★ 4. Mary has three skirts, two blouses, and either black or white shoes that she likes to wear to school. How many days can she go without repeating the same combination of skirt, blouse, and shoes?

Answer: _____



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:

In the restaurant there are 12 square tables. Only one person can sit on each side. What is the greatest number of people that can be seated if the tables are pushed end to end into one large rectangle?

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. Be sure to save the information because we will measure again in two months!

How tall are you? _____

How much do you weigh? _____

What is the circumference of your head?

★★★ 5. How many cubes do you think it will take to make a cube that is twice as high as one cube?

Answer: _____

Three times as high?

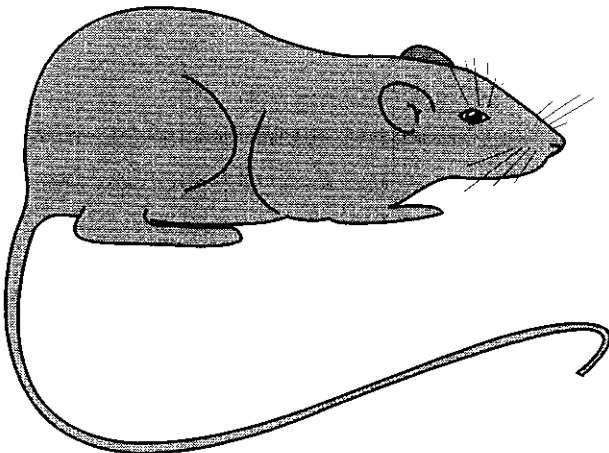
Answer: _____

Four times as high?

Answer: _____

★★ 6. If a cat catches seven mice in four days, how many mice should it catch in 16 days?

Answer: _____



★★★★ 7. At the end of the soccer tournament, each team captain shakes hands with every other team captain. If there were eight teams in the tournament, how many handshakes were there?

Answer: _____

★ 8.

$$\begin{array}{r} 432 \\ \times \quad ? \\ \hline 4752 \end{array}$$

? = _____

★★ 9. Julia spent $\frac{1}{3}$ of her birthday money. Then she lost $\frac{1}{2}$ of the rest. She now has \$10 left. How much did she get for her birthday?

Answer: _____

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. RIDDLE ME THIS:

I'm thinking of a number.
 It is odd.
 It's between 1 and 100.
 It's higher than 20.
 It is smaller than the answer to 6×6 .
 It is a multiple of 5.
 The sum of its digits is 7.

Answer: _____

★★★ 2. Hank had an average of exactly 84% after taking two tests. On the third test, he scored 96%. Find his average for all three tests.

Answer: _____

★★★ 3. What day of the week was yesterday, if five days before the day after tomorrow was Wednesday?

Answer: _____

S	M	T	W	Th	F	S
		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			

★★ 5. Complete the following number pattern:

14 28 18 36 26 52 42 84 _____

Answer: _____

★★ 6. You know that the perimeter of a certain rectangle measures 22 in. If its length and width each measure a whole number of inches, how many different areas (in square inches) are possible for this rectangle?

Answer: _____

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:*

Tickets for the concert cost \$12 for adults or teenagers and \$6 for children. If the group has \$60, how many adults or teenagers and how many children could go?

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.*

★★★ 6. Each salad contains red beans, lima beans, and black-eyed peas. Use the information below and determine how many of each of the three types of beans are needed.

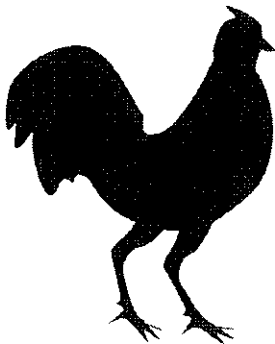
a. This salad contains at least 12 beans. It has one more lima bean than red beans. It has one more red bean than black-eyed peas.

b. This salad contains the same number of red and lima beans. It has three more black-eyed peas than red beans. It has a total of 18 beans.

c. Lima beans make up $\frac{1}{2}$ of this salad. The salad has exactly two red beans. The number of lima beans is double the red beans.

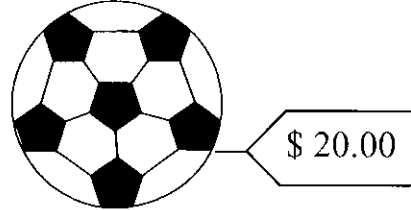
★★★ 7. Suppose two hens lay three eggs in four days. At the same rate, how long will it take eight hens to lay a dozen eggs?

Answer: _____



★★★ 8. The sale is $\frac{1}{4}$ off the marked price. How much will you pay for this soccer ball, including tax of \$.05 per dollar?

Answer: _____



★★★ 9. Sam's father gave him 49 dog biscuits to give to their three dogs – Alice, Joe, and Mickey. Sam must divide the biscuits according to the size of the dogs. Joe needs to get twice as much as Alice and Mickey needs to get twice as much as Joe. How many biscuits should Sam give each dog?

Answers:

Alice: _____ Joe: _____ Mickey: _____



Setting Personal Goals

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

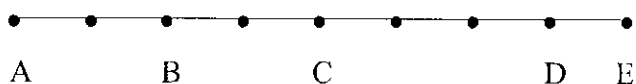
- What information do I know?*
- What else do I need to find out?*
- What question am I trying to answer?*
- Have I missed anything?*
- Does my answer make sense?*

Practice asking good questions!

★ 1. The length of one side of a regular hexagon is 20 cm. What is the perimeter of the hexagon?

Answer: _____

★★★★ 2. Given the number line below, express in fractional form the relationship between:



\overline{AB} is what fractional part of \overline{AD} ? _____

\overline{AC} is what fractional part of \overline{AD} ? _____

The length of \overline{AB} is what percent of the length of \overline{AE} ? _____

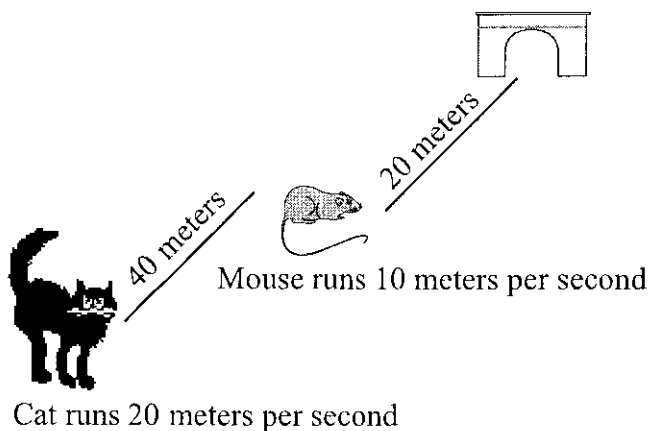
The length of \overline{AB} is what percent of the length of \overline{AC} ? _____

★★★ 3. A bag of marbles can be divided in equal shares among 2, 3, 4, 5, or 6 friends. What is the least number of marbles that the bag could contain?

Answer: _____

★★★ 4. Look at the picture below. Can the mouse reach its hole before the cat can catch it?

Answer: _____



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:*

Use exactly 50 coins to make one dollar. You must have at least one penny, one nickel, one dime, and one quarter.

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.

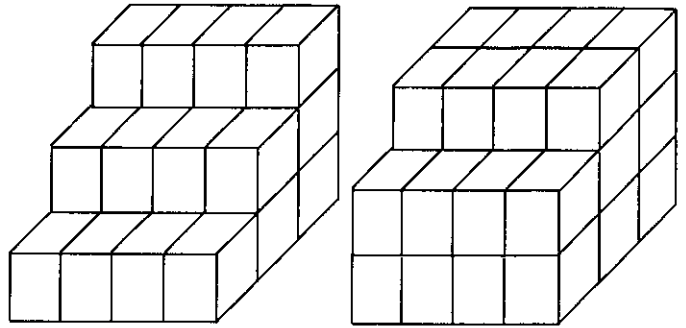
★★★ 5. Michael was supposed to multiply a number by 5. By mistake, he divided the number by 5 instead. His answer was 5. What should have been the correct answer?

Answer: _____

★★ 6. The fifth grade is going on a field trip to the zoo. The zoo requires that for every 15 students, there must be one chaperon. If there are 194 students going on the trip, how many chaperones will be needed?

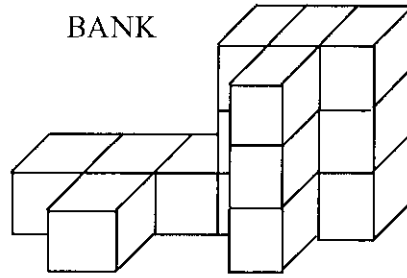
Answer: _____

★★★ 7. Find the volume for each building.



BANK

OFFICE



HOSPITAL

Bank _____

Hospital _____

Office _____

★★ 8. What is the greatest six-digit number in which the thousands place is twice the digit in the tens place? What is the least number?

Answer:

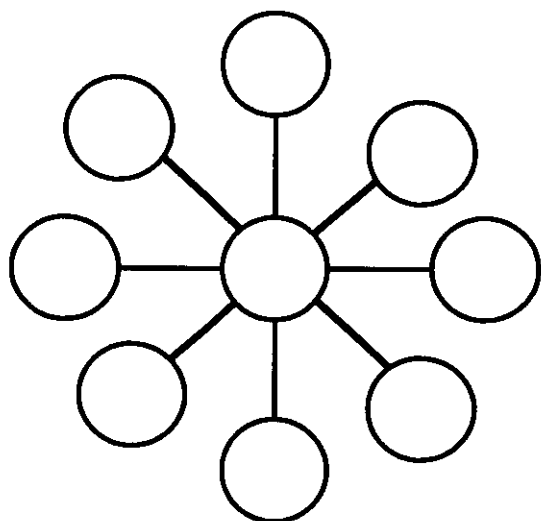
Greatest number _____

Least number _____

Setting Personal Goals

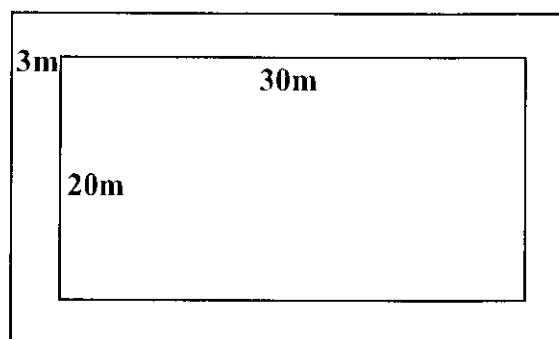
Communicating mathematically means that you are able to share your ideas and understandings with others orally and in writing. Because there is a strong link between language and the way we understand ideas, you should take part in discussions, ask questions when you do not understand, and think about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

★★★ 1. Use the numbers 4 through 12 to fill in the circles. The numbers on each straight line must add up to 21.



★★★★ 3. A rectangle lot 30m by 20m is surrounded on all four sides by a concrete walk 3m wide. If you need to concrete only the sidewalk, how much concrete will you need? (surface area)

Answer: _____



★★ 2. Your mother and father decide to change your allowance. You are given the choice:

- a. They will pay you \$10 a week
- or -
- b. They will pay you one cent the first week, two cents the second week, four cents the next week, and so on, doubling your allowance each week for a year.

Which will give you the most money?

Why?

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?*

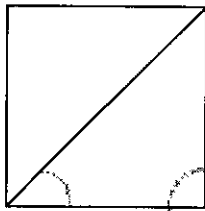
A palindromic number is one which reads the same backwards as forwards. How many 3-digit palindromic numbers are there?

MathStars Home Hints

Set aside a special time each day to study. This should be a time to do homework, to review, or to do extra reading. Be organized and have a special place in which to work. This place needs to have a good light and to be a place where you can concentrate. Some people like to study with quiet music; others like to sit at the kitchen table. You need to find what works for you!

Remember that when you are reviewing or working on solving problems it may help to study in a group.

- ★ 4. Label the correct measurements on the marked angles in the square.

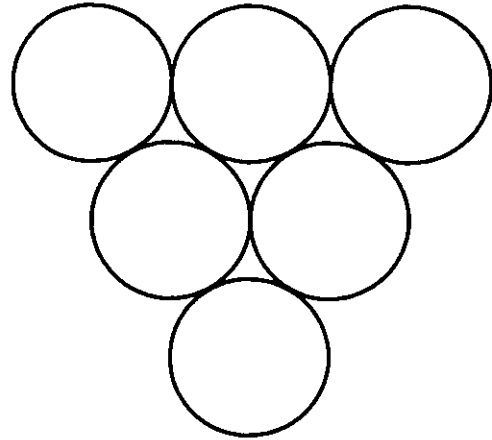


- ★★ 5. What are the two least likely sums to be rolled on two regular dice? Why?

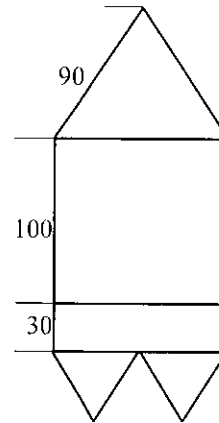
Answer: _____



- ★★ 6. Move only two discs and turn the triangle upside down. (Draw arrows to show how to move them.)



- ★★★ 7. The figure below is constructed of equilateral triangles and rectangles. Label the ten unmarked segments with their correct lengths.



Setting Personal Goals

If your goal is to become a more responsible student, it means that you:

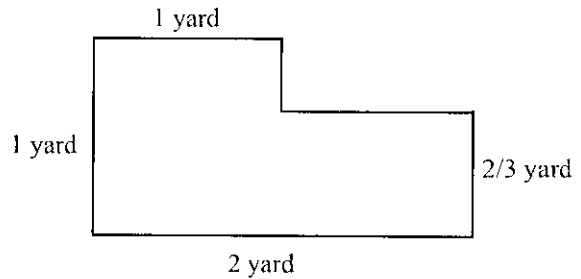
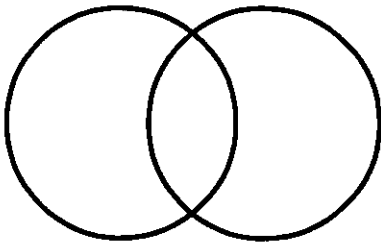
- actively participate in class.
- complete your assignments.
- have everything you need in class.
- ask for help when you do not understand.
- be willing to investigate new ideas.

- ★★ 1. If $x = 4$ and $y = 2$, then:
- $3x + y =$ _____ and
- $4y - 2x =$ _____

- ★★★ 5. Find the area of the flower bed below in square feet.

Answer: _____

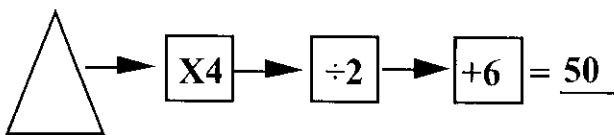
- ★★ 2. Graph the factors of 45 and 54 in the Venn diagram below.



- ★★ 3. If there are two computers for every 40 students at Elm Elementary, how many computers do they have for the 440 students attending school?

Answer: _____

- ★★ 4. Write a number in the triangle that will make the answer 50.



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:*

What happens to the volume of a rectangular prism if the width is tripled?

MathStars Home Hints

Remember when you had "Show and Tell" in kindergarten? Now you have a great deal to share in mathematics. Talk to the folks at home about what you are learning. Show them your papers and tell them about what is happening in your math class. Let them see that you are doing problems in class similar to these. Each week choose an assignment that you are proud of and display it at your house.

★★★6. All of these are snobhops:



None of these are snobhops:



What is my rule: _____

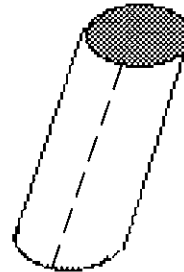
Draw another snobhop:



★★★ 7. On one night, 30 fifth graders gathered to study mathematics and science. Of these students, 11 studied math, 15 studied science, and 3 studied math and science. How many students of the group studied neither math nor science?

Answer: _____

★★★ 8. If you cut a cylinder along the dotted line and flatten it, the inside forms what shape?



Answer: _____

If the area of the flattened figure is 20 square inches and the distance around the top of the cylinder is 4", how tall is the tube?

Answer: _____

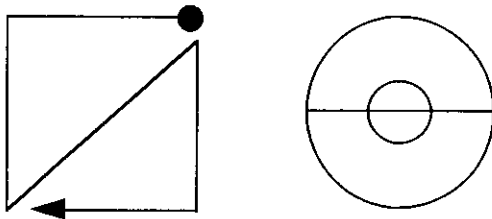
★ 9. There are 20 chickens, 4 horses, and 8 cows on the McDonald farm. How many legs are there?

Answer: _____

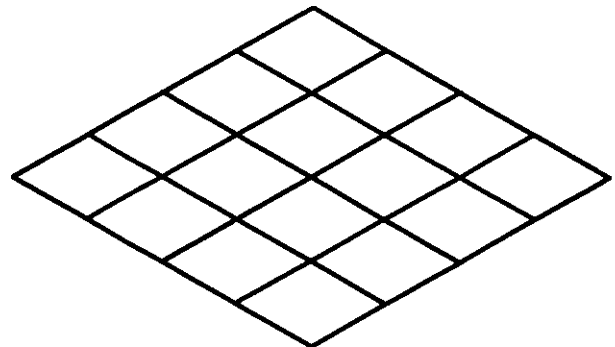
Setting Personal Goals

Mathematics is all around us. We use it every day in personal living and in all of our school work. When we read graphs in social studies, gather and use data in science investigations, or count in music or physical education, we are using mathematics. We make connections in our math classes also; for example, measurement skills help us in solving many geometry problems, and classification skills help us in organizing data. We use computation in many different situations. You will become a stonger mathematics student by making connections.

★ 1. The square below can be traced with one continuous line without lifting a pencil or retracing a line. Find the correct path for the circle.



★★ 4. Create a pattern using green, black, red, and yellow so that each color appears only once in every line of four diamonds.



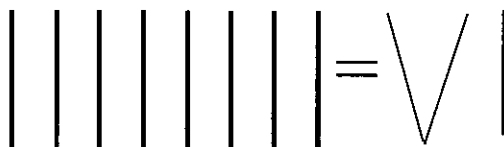
★★★★ 2. Juan received the following grades for the first grading period:

6	8, 8
7	1, 7, 7
8	3, 5, 7, 8
9	5, 9, 9, 9

Should Juan request that the teacher use the mean or median to determine his grade, if he has a choice? Why?

Answer: _____

★★ 3. Using Roman numerals made from toothpicks, move one toothpick to make a true equation.



Strategy of the Month

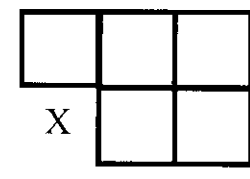
*When a problem involves data with more than one characteristic, **making a table, chart, or graph** is a very good way to organize the information. It helps your brain to identify patterns and to discover any missing data. Tables help you record data without repeating yourself. Making a table or chart 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:*

Farmer Oakes had 15 animals in her farmyard. Some were chickens and some were cows. There were 52 legs in all. How many cows were in her farmyard?

MathStars Home Hints

Everyone learns from sharing, and you can teach others about the new mathematics ideas you are learning. Show someone at home the work you are doing in school and explain how you figured out the problems. Become the teacher and help a younger student. Explain what you have learned and what else you want to know. Good teachers set goals and evaluate the progress made toward reaching these goals. You will continue to be a learner whenever you become a teacher.

- ★★ 5. Arrange the digits 4, 8, 7, 2, and 9 such that the answer will be the largest possible product.



Answer: _____

- ★★ 6. RIDDLE ME THIS:

I am $> 5 \times 10$.

I am < 100 .

I am an even number.

I am not 70 or less.

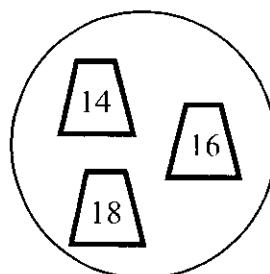
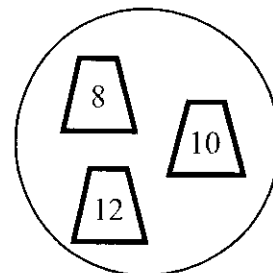
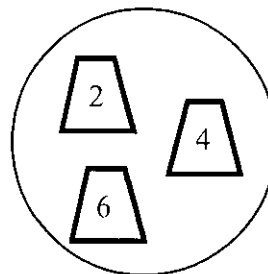
I am a multiple of 4.

I am a multiple of 3.

I am < 80 .

Answer: _____

- ★★ 7. Even up the weights in these circles by moving one weight to another circle. The sum of the weights in each circle should be equal.



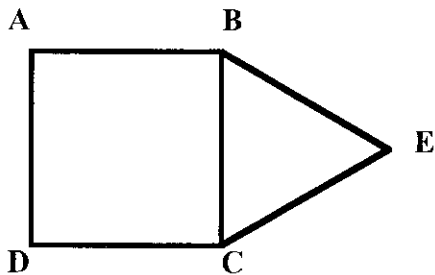
- ★★★ 8. Five flags are evenly placed around a track. It took a runner 30 seconds to get from the first flag to the third flag. If the runner continues at the same speed, how long will it take her to get completely around the track?

Answer: _____

Setting Personal Goals

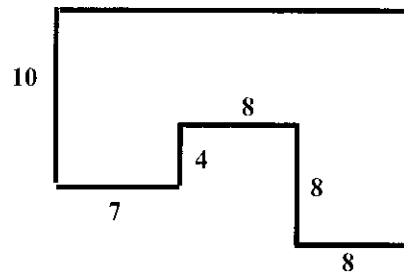
Perseverance means that you do not give up easily. Good problem-solvers try different strategies when they are stumped and are not discouraged when they cannot find an answer quickly. They stick to the task, using all of their previous experiences to make connections with what they know and the problem they are trying to solve. If something does not work, they discard the unsuccessful strategy and try again using a different strategy.

★★ 1. Square ABCD has one side of length 4 cm. Triangle BEC is an equilateral triangle. What is the perimeter of the figure ABECD?



Answer: _____

★★★★4. Determine the area of this polygon if the segments have the indicated lengths.



★ 2. George, Susan, Henry, and Sarah are 7, 8, 9, and 10 years old. Henry is older than Sarah and younger than George. Susan is younger than Henry and older than Sarah. What is each person's age?

George's age _____

Susan's age _____

Henry's age _____

Sarah's age _____

★★★ 3.

$$1000 \times 100 \times 10 \times 1 \times 0.1 \times 0.01 \times 0.001 =$$

Answer: _____

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:

The students were in line at the movie theater to buy tickets. There was a student in front of two students, a student between two students, and a student behind three students. What is the least number of students that could have been in line?

MathStars Home Hints

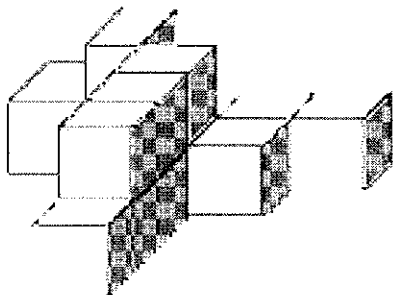
Calculators are important tools. They do not replace mathematical thinking; you must tell the calculator what numbers and operations to use. Calculators allow students to focus their energies on solving problems and to easily try alternative solutions. They also allow students to solve problems that were too difficult for pencil and paper. Number sense and good estimation skills are important when students use technology to carry out computations. Explore some "what if" situations with the calculator. "What if the cost of gas goes up 4¢... What if we build the patio 2 feet wider..."

★★ 5. Farmer Brown had a garden plot that was two yards by three yards. He tripled its length and width the next year. What was the area of the new garden? Did the area triple?

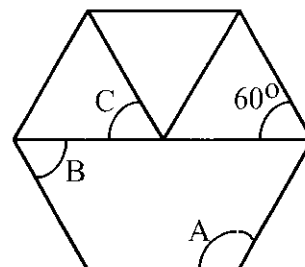
★★★ 6. How many seconds are in one week?

Answer: _____

★★★ 7. What is the volume of the figure below? If it were painted on the outside with purple, how many blocks would have exactly four faces painted purple?



★★★ 8. In a regular hexagon, what is the measurement of angle A, B, and C.



A _____ degrees

B _____ degrees

C _____ degrees

★★ 9. In these addends, each letter represents a distinct digit. Find the digits.

CENT	T = _____
CENT	E = _____
+ SCENT	N = _____
3 5 1 2 8	C = _____
	S = _____

Setting Personal Goals

Accuracy is very important to everyone. Pharmacists must always measure accurately when preparing prescriptions and carpenters must cut supporting boards precisely to fit. Careless mistakes may be avoided in the classroom by computing carefully, checking back over work, and writing numbers clearly and neatly. If work is worth doing, it is worth doing well.

★★★★1. In Mr. Higdon's class three out of five students prefer chocolate ice cream. Two out of five students are evenly divided in their preference for vanilla and strawberry. If one carton of ice cream will feed ten students, how many cartons of vanilla, strawberry, and chocolate ice cream will Mr. Higdon need in order to give his 25 students their choice of flavors for the class party? How much ice cream of each flavor will be left over?

	# ice cream cartons	
	needed	left over
chocolate		
vanilla		
strawberry		

★★ 2. If you could fold a paper in half six times, how many sections would there be?

Answer: _____ sections.

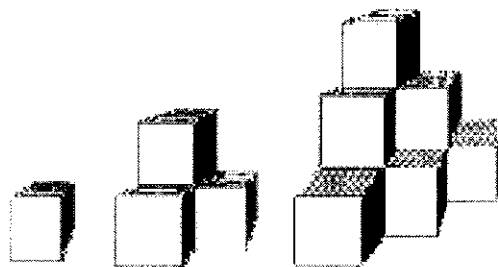
How about folding it 8 times?

Answer: _____ sections.

★ 3. If 24 out of 60 cows in the field are females, what proportion of the cows are female?

Answer: _____

★★★ 4. Look at the pattern of blocks below. If each cube has a volume of 5 cm^3 , what is the volume of the block structure that would come next?



Answer: _____ cm^3

Strategy of the Month

*What do you do if you have a problem that seems to be very complicated? It may have a lot 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:*

The houses on Cox Avenue are numbered consecutively from 101 to 950. How many house numbers contain at least one digit 5?

MathStars Home Hints

Math skills develop as you apply concepts learned in school to real life situations.

Which product is the best buy? How many tiles will it take to cover the kitchen floor?

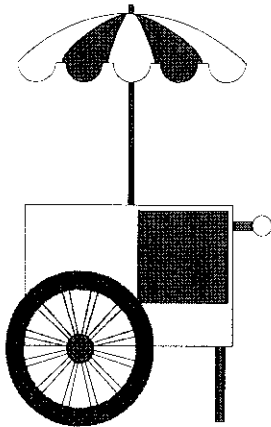
What time should we start baking the turkey so that we can have dinner at 7p.m.? What do the statistics tell us about the two baseball players?

★★★ 5. A bag contains only red, blue, and orange marbles. There is a total of 36 marbles in the bag. The probability of drawing a red marble is $\frac{2}{3}$ and the probability of drawing a blue marble is $\frac{1}{6}$. How many of each color are in the bag?

_____ orange _____ blue _____ red

★★ 6. Mary Martin owned one-half of a lemonade stand. She sold one-fourth of her share for \$150. What was the value of the business?

Answer: _____



★★★ 7. The following average daily temperatures were recorded on 12 consecutive days:

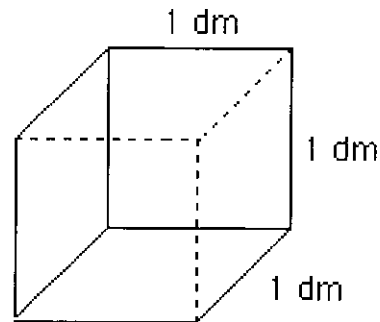
56 , 58 , 57 , 72 , 71 , 75 , 55 , 55 , 56 , 55 , 58 , 55

Construct a stem and leaf graph and then determine the mean and median temperature.

Mean _____ Median _____

What statement can you make about the trend of the temperature during these days?

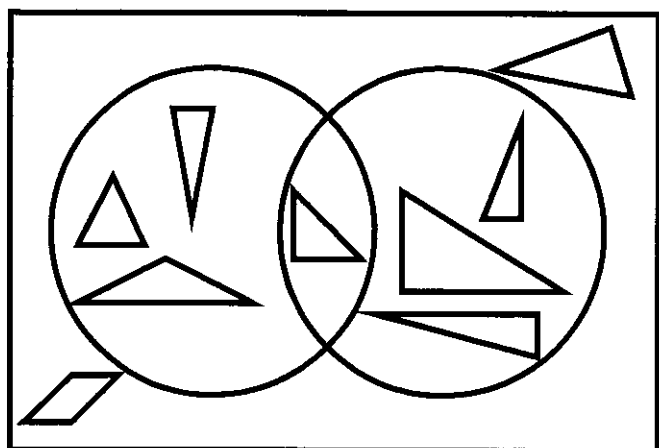
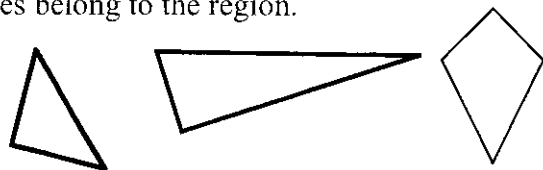
★★ 8. How many centimeter cubes can be placed in the cube below.



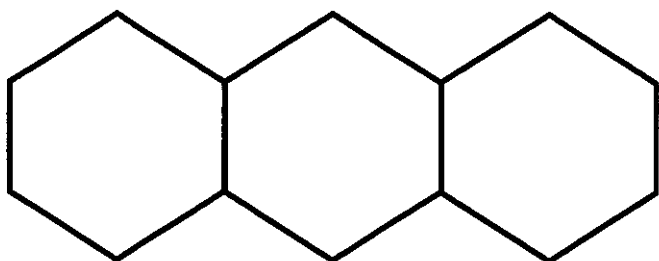
Setting Personal Goals

Confidence means that you believe in yourself. You can become a more confident problem solver by learning to use a variety of strategies. If your first idea does not work, don't give up, just try another way! Working with a buddy also helps. You need to remember that there is usually more than one way to solve a problem and that practice always helps us learn.

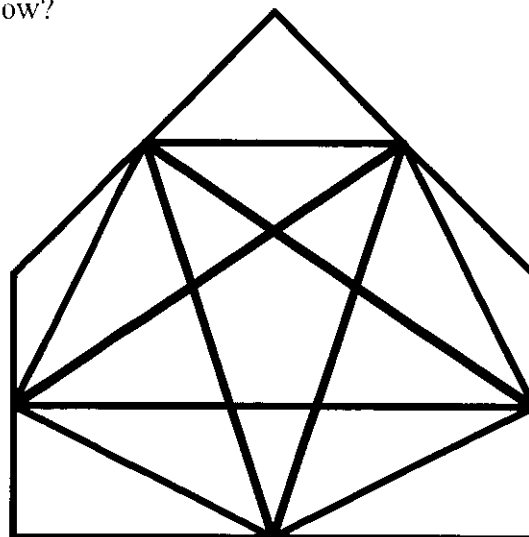
★★★ 1. Decide where these polygons would go on the Venn diagram below and draw them in. Label the regions of the diagram to indicate which shapes belong to the region.



★★ 2. It takes six toothpicks to build one hexagon, 11 to build two hexagons, 16 to build three hexagons. How many toothpicks will it take to build ten hexagons?



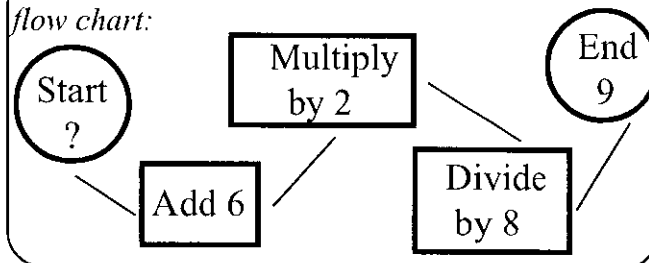
★★★★ 3. How many triangles in the figure below?



Answer: _____

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.

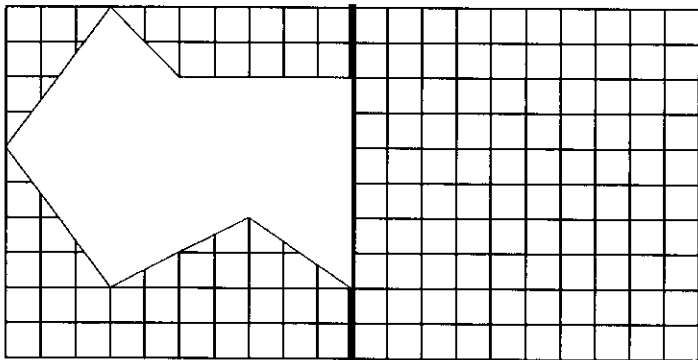
- ★ 4. Find the sum of the counting numbers from 1 – 25. In other words, if $s = 1 + 2 + 3 \dots + 24 + 25$; then find the value of s .

Answer: _____

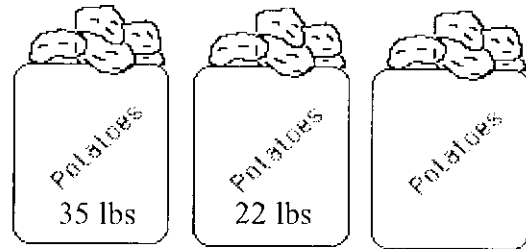
- ★★★ 5. Find the missing operations that make this number sentence true.

$$2.9 \square 1.42 + 6.03 \square 8.6 = 1.548$$

- ★★ 6. Draw the reflection of this design.

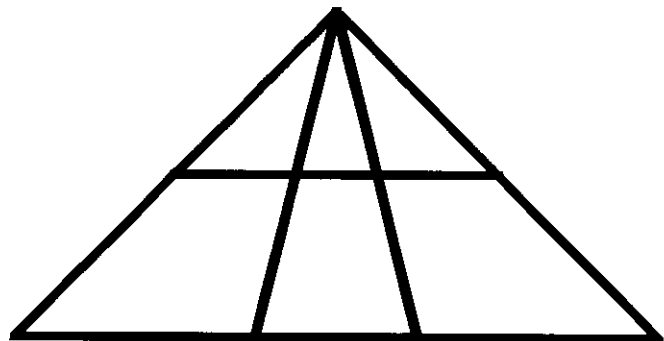


- ★★★ 7. The average weight of these bags of potatoes is 30 lbs. What is the weight of the unmarked bag?



Answer: _____

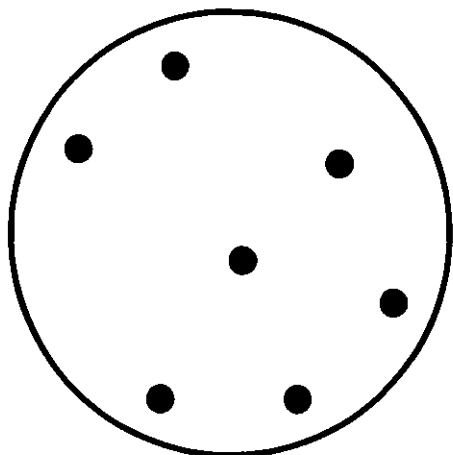
- ★★★ 8. Find all of the triangles.



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. Cut the pizza using three straight cuts so that each pepperoni is on a slice by itself. (Slices do not have to be congruent.)



★★ 2. All the fifth grade classes are going on a field trip. They will take three buses that hold 54 passengers each. If the buses are full and there are seven chaperones going, how many students are going?

Answer: _____



★ 3. What is the value of \otimes if

$$(\otimes \times 8) + 2 = 26$$

Answer: _____

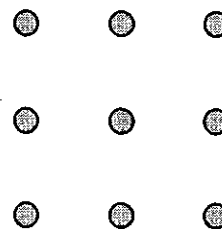
★★★ 4. The perimeter of a rectangle is 120 meters. The length is twice the width. Find the area of the rectangle.

Answer: _____

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** by asking, "Do all of the lines have to stay within the square formed by the dots?"*

Draw 4 line segments through all 9 dots without lifting your pencil or pen.



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. In a book with 382 pages, how many 3's would be used to number the pages?

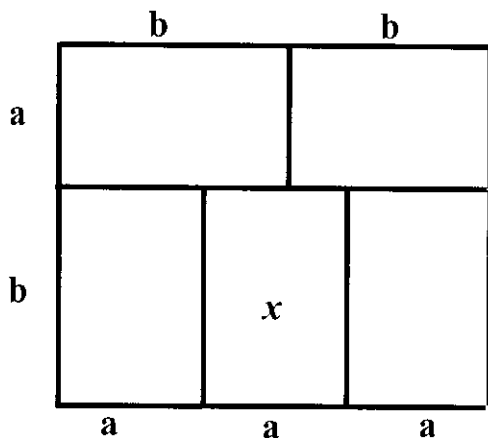
Answer: _____

★★ 6. How many numbers can be made from the following digits if each digit is used one time?

3 5 9 6

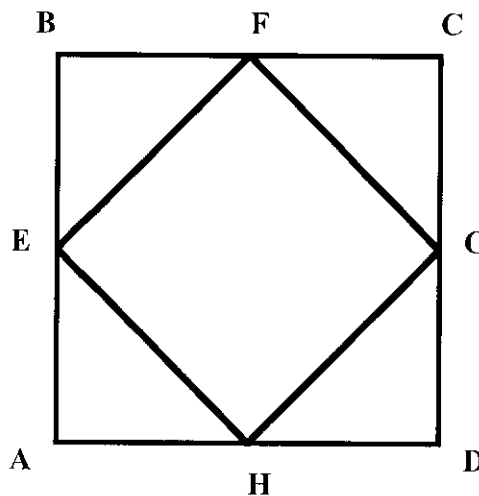
Answer: _____

★★★ 7. The large rectangle is divided into five congruent rectangles. If $a + b = 10$, find the area of the rectangular region labeled x .



★★★ 8. Figure ABCD is a square with sides that measure four. E, F, G, and H are the midpoints of the sides. What is the area of $\square EFGH$?

Answer: _____



★★ 9. If each letter represents a different digit, what is the value of each letter?

$$\begin{array}{r} \mathbf{A\ B\ C} \\ \mathbf{x\ \ C} \\ \hline \mathbf{D\ B\ C} \end{array}$$

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?