Name_____

More or Less

Circle the numbered cubes on the right side of the inequality
symbol that make the statement true.

1. $2 <$ 1 2 3 4 5 6 7 8

2. $5 >$ 1 2 3 4 5 6 7 8

3. $3 <$ 1 2 3 4 5 6 7 8

Shade the numbers on the right side of the inequality symbol
that make the statement false.

4. $4 <$ 1 2 3 4 5 6 7 8

5. $1 >$ 1 2 3 4 5 6 7 8
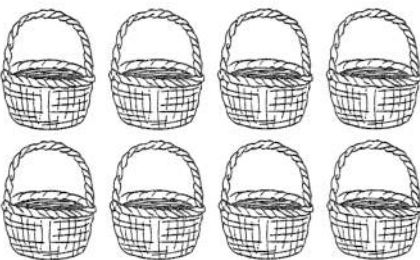
6. $7 >$ 1 2 3 4 5 6 7 8

Picture Problems

Below each picture, write the number value of *n*.

1.

   $-$ *n* $=$

   n = _____

2.

   n $+$

   $=$

   n = _____

3.

   n $\times$

   $=$

   n = _____

4.

   $-$ *n* $=$

   n = _____

5.

   $\div$ *n* $=$

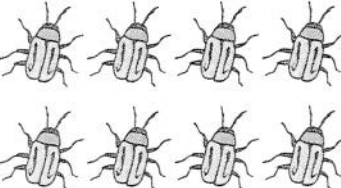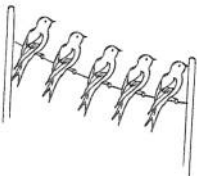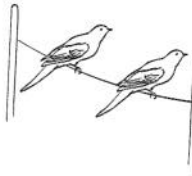   *n* = _____

Name_____

In and Out

Each series of pictures represents the same operation that is performed on the "in" number to produce the "out" number. Answer the questions for each set of pictures.

IN	OUT	IN	OUT	IN	OUT
0	0	1	3	2	6
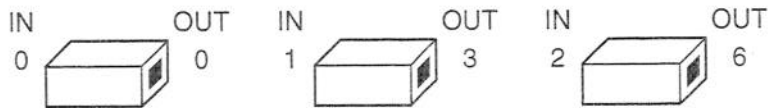
1. What are the out numbers from the box when the numbers 5, 10, and 20 are put in? _____

2. If x is the in number, what is the out number? _____

3. If 18 is the out number, what is the in number? _____

IN	OUT	IN	OUT	IN	OUT
2	6	4	10	6	14
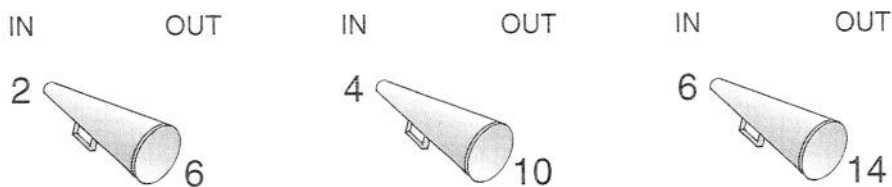
4. What are the out numbers from the megaphone when the numbers 5, 3, and 12 are put in? _____

5. If n is the in number, what is the out number? _____

IN	OUT	IN	OUT	IN	OUT
2	4	6	36	3	9
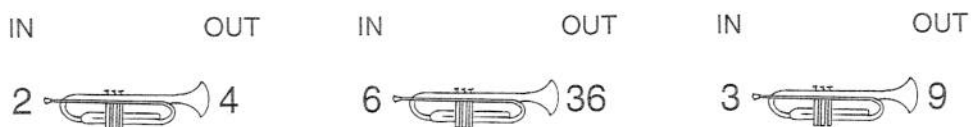
6. What are the out numbers from the horn when the numbers 5, 7, and 4 are put in? _____

7. If numbers 64, 81, and 100 are the out numbers, what numbers were put in? _____

8. If n is the in number, what is the out number? _____

Name_____

Among Friends

1. Colin has just won the school chess tournament. Tom and Mark congratulated Colin with high fives. Use the diagram to determine how many high fives there were if each boy gave the others a high five and there were no duplications.

_____

Colin

Tom   Mark
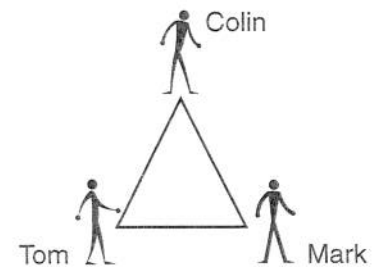
2. Two pairs of friends came in first and second place at a bridge tournament. Each friend gave a thumbs-up signal to the others. How many thumbs-up signals were there without any duplication among the friends?

_____

3. Five basketball players went out onto the floor and each slapped a high five to the other members.

   Draw a diagram showing the possibilities.

4. How many high fives were there?   _____

5. Six people are in a circle. They start shaking hands with each other. How many handshakes are there?   _____

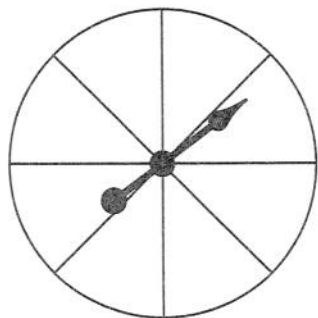Name_____

Is It Possible?

1. Design the spinner to show that it is equally likely that a person would spin red or green but impossible that a person would spin yellow. Use R for red, G for green, and Y for yellow.

Here are the rules for a new addition game:

- The two rows of numbered disks are turned over, and each row is mixed up within its original row.

- The player chooses a disk from row 1 and a disk from row 2.

- The player earns a point if the sum of the two disks is equal to any of the disks in row 2.

    Example: row 1 = 1 and row 2 = 7, 1 + 7 = 8 wins a point

Row 1 (1) (2) (3) (4) (5)

Row 2 (6) (7) (8) (9) (10)

Is it certain or impossible to win a point for the following situations?
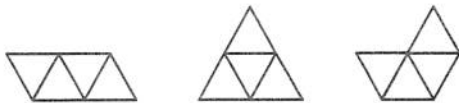
2. row 1 = 2 and row 2 = 6 _____

3. row 1 = 3 and row 2 = 7 _____

4. row 1 = 4 and row 2 = 7 _____

5. If a 1 is picked from row 1, which disk in row 2 would make it impossible to score a point? _____

6. If a 5 is chosen from row 1, is it certain or impossible to score a point? _____

Triangle Shapes

Four equilateral triangles can be attached to form three different shapes by fitting two sides together as shown. (Reflections and rotations of these three shapes are not considered different shapes.)

1. Using five equilateral triangles, draw the number of different shapes possible by joining the triangles at the sides.

2. Using six equilateral triangles, show the shape of a regular hexagon that can be formed by joining the triangles at the sides.

3. Using six equilateral triangles, show a six-sided shape that is made by forming a bigger equilateral triangle and a rhombus (4 equal sides but not a square).

4. Using six equilateral triangles, show a parallelogram and three other different shapes that can be made by joining the sides.

Name_____

Ribbons and Socks

1. Rusty's sock drawer contains 6 loose blue socks and 6 loose red socks. One morning Rusty was not paying attention and just pulled socks from his sock drawer. How many socks should Rusty take from the drawer to be sure he has a pair? Explain your answer.

_____

2. If Rusty wants to make sure that he has a pair of blue socks, how many socks should Rusty take from the drawer? Explain your answer.

_____

3. Sarah has 8 pink ribbons, 4 blue ribbons, and 6 yellow ribbons in her ribbon drawer. How many ribbons does Sarah need to select if she wants to make sure that she has a matching pair and does not look as she pulls? Explain your answer.

_____

4. If Sarah pulled out 1 blue ribbon and wants to make sure that she has a pair of blue ribbons, how many more ribbons does Sarah need to select? Explain your answer.

_____

5. If Sarah pulled 1 yellow ribbon and wants to make sure that she has a pair of yellow ribbons, how many more ribbons does Sarah need to select?

_____

6. If Sarah first pulled a pink ribbon and wants to make sure that she has a pair of pink ribbons, how many more ribbons does Sarah need to select? Why is this less than first pulling out yellow or blue?

_____

Name_____

State Predictions

John and Jessica are assigned to collect data for a school project. They need to find out which of 4 U.S. states the students would like to learn more about: Florida, California, Oregon, or Colorado.

It is impossible to ask all of the 500 students at their school, so they decided to collect some sample data.

- John surveyed 10 students: 7 chose California and 3 chose Florida.

- Jessica surveyed 50 students: 25 chose California, 10 chose Florida, 10 chose Oregon, and 5 chose Colorado.

1. Using John's data, predict the number of students who would choose to know more about each state.

_____

_____

2. Using Jessica's data, predict the number of students who would choose to know more about each state.

_____

_____

3. Which survey do you think is a more accurate prediction of the students' choices? Why?

_____

_____

4. What things might influence the predictions when taking a sample?

_____

_____

Graph It

A. B. C.

D. E. F. G.
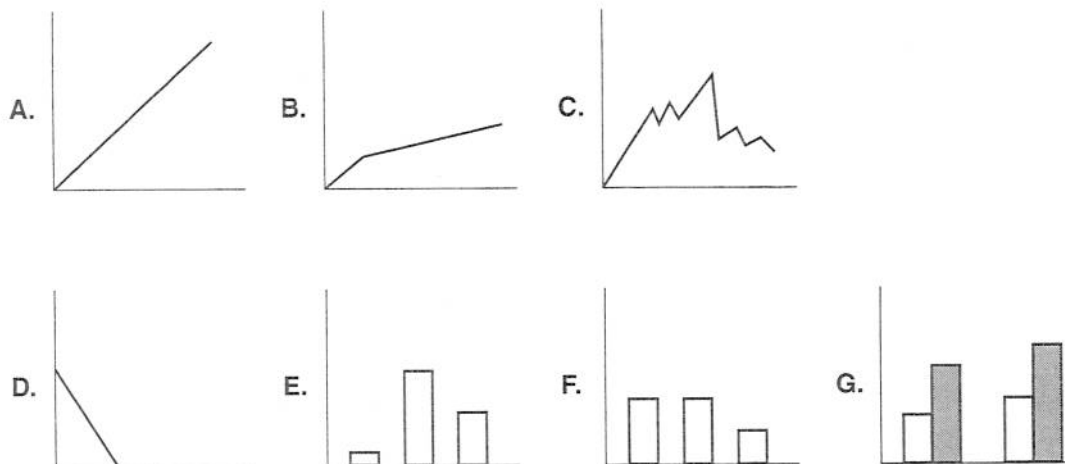
The graphs have no labels on them, but you should be able to identify them from the type of information each contains. Write the letter of the correct graph in the space provided.

1. Although he started slowly, Jason earned a steady income from tips at his dog-walking service. _____

2. This year's school store and cafeteria both showed an increase in profits this year over last year. _____

3. The biking club noticed that the rate of speed went down by 2 mi an hour for every mile they biked. _____

4. Janet spends an equal time reading and playing sports but less time watching television. _____

5. The value of Mark's stock rose sharply at first but suddenly fell and has stayed low. _____

6. Most students preferred to do their homework after dinner, some right after school, and almost none in the morning. _____

7. Santi's plant experiment showed a steady growth of 2 cm a week. _____

Name_____

Coloring Maps

1. Use a pencil to draw a squiggly line. Cross the line over itself repeatedly, without lifting your pencil, and end at the starting point. Be sure your segments are large enough to color. Here is an example of what it might look like.
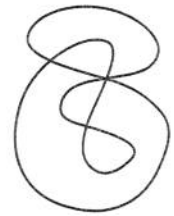
2. Make a prediction. If you use four colors, can you color the various segments of your squiggly design so that no two adjacent segments are the same color?

   _____

3. Color your squiggly design using four colors.

4. If you use three colors, can you color the various segments of your squiggly design so that no two adjacent segments are the same color?

   _____

5. Here is a map of the island of Oldman. Color the waters surrounding the island blue. Color the rest using no more than four other colors. (Remember no colors should touch.)