

# Secret Number

**This problem gives you the chance to**

- *reason about factors, multiples, and other number properties*
- *communicate mathematical reasoning*



Juanita has a secret number. Read her clues and then answer the questions that follow.

Juanita says, "Clue 1: My secret number is a factor of 60."

1. Can you tell what Juanita's secret number is? Explain your reasoning.
2. Daren said that Juanita's number must also be a factor of 120. Do you agree or disagree with Daren? Explain your reasoning.
3. Malcolm says that Juanita's number must also be a factor of 15. Do you agree or disagree with Malcolm? Explain your reasoning.
4. What is the smallest Juanita's number could be? Explain.



5. What is the largest Juanita's number could be? Explain.

Suppose for Juanita's second clue she says, "Clue 2: My number is prime."

6. Can the class guess her number and be certain? Explain your reasoning.

Suppose for Juanita's third clue she says, "Clue 3: 15 is a multiple of my secret number."

7. Now can you tell what her number is? Explain your reasoning.

8. Your secret number is 36. Write a series of *interesting clues* using factors, multiples, and other number properties needed for somebody else to identify your number.



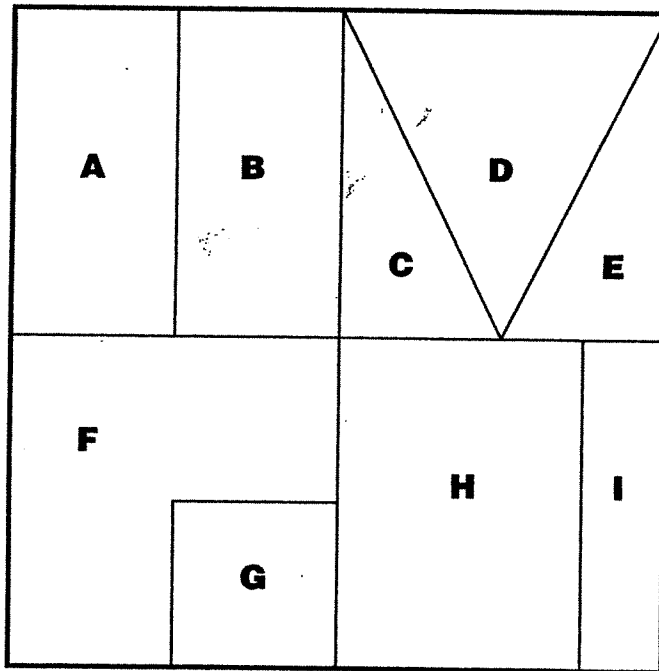
# Fractions of a Square

This problem gives you the chance to

- *analyze and reason about rational numbers*
- *use spatial and numerical reasoning*

On your own

The large outer square represents 1 whole unit. It has been partitioned into pieces. Each piece is identified with a letter.



1. Decide what fraction each piece is in relation to the whole square, and write that fraction on the shape.

Name

Date

2. Explain how you know the fractional name for each of the following pieces.

A

C

D

F

CHALLENGE PROBLEM:

3. Identify a piece or collection of pieces from the square that will give you an amount close to:

a.  $\frac{1}{5}$

b.  $\frac{2}{3}$

## Baseball cards and ratio problems

Name: \_\_\_\_\_

Color: \_\_\_\_\_

Date: \_\_\_\_\_

Here are some problems like the ones we have been doing in class. The ratio problems may be easier for you if you create a ratio table. Show your work for each problem.

1. John, Jim, Jack, and Josh were splitting up 360 baseball cards. John took  $\frac{3}{8}$  of them, Jim took 35%, Jack took .15 of them and Josh got the rest. How many cards did Josh get?
2. Bill and Bob split up some baseball cards in the ratio 7:4. Bill got 24 more cards than Bob. How many cards did the boys have altogether?
3. Cullen and Caylen had baseball cards in the ratio of 9:5. They had 126 cards in total. How many did each boy have?