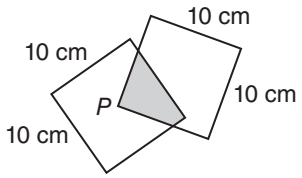
5-11 Problem-Solving Strategy: Consider Extreme Cases

Read | Plan | Solve | Check

Name _____ Date _____

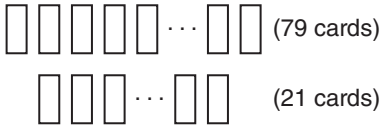
Consider extreme cases to solve.

1. A vertex of the square on the right is hinged at the center point P of the square on the left. Regardless of how the square is positioned about this hinge, the area of the shaded region of intersection is the same. What is that area?



2. After three 100-point exams, Margarita's average in Science class is 82%. With two exams remaining, can Margarita get the 93% final average required to earn an A?

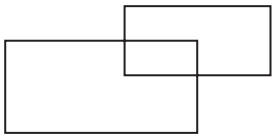
3. Mr. Vinck writes a different number on 100 note cards. He divides the cards into two piles: one has 79 cards, and the other 21. The cards are then placed into two separate rows with their numbers showing. A student removes an equal number of the cards from both rows. How many more cards remain with their numbers showing in the larger row than the smaller row?



4. A jar holds exactly 16 blue balls, 14 red balls, and 12 yellow balls (each identical except for color). If balls are pulled randomly, what is the minimum number of balls that must be pulled in order to guarantee that at least one ball of every color is pulled?

5. What is the greatest number by which 76 can be multiplied to get a product with fewer than four digits?

6. A rectangle has a length of 10 in. and a width of 5 in. Another rectangle overlaps this rectangle. It has a length of 7 in. and a width of 3 in. What is the difference between the two nonoverlapping regions of the two rectangles?



7. One postal route has 60 houses on it. One day, the letter carrier has 301 letters to deliver. After all the letters have been distributed, one house received more letters than any other house. What is least number of letters the house could have received?

8. A train is traveling at a constant speed of 75 mph. A passenger notices a second train traveling on a parallel track about 1 mile behind. The second train passes the first 5 minutes later. How fast was the second train traveling assuming its speed was constant?

9. Find the missing digits in the following seven-digit number so that the number itself is equal to the product of three consecutive numbers. What are three numbers?

1,5_ _, _80