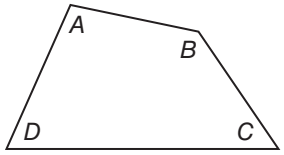
2-9 Problem-Solving Strategy: Solve a Simpler Problem

Read Plan Solve Check

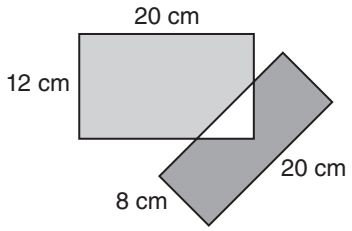
Name _____ Date _____

Solve a simpler problem to answer each question.

1. If the sum of the interior angles for all quadrilaterals is the same, what is the sum of angles A, B, C, and D in the quadrilateral seen here?



2. Regardless of how these two rectangles overlap, the difference between the area of the light grey region and the area of the dark grey region is always the same. What is that difference?



3. The sum (S) of the first n positive integers ($S = 1 + 2 + 3 + \ldots + N$) is $S = \frac{n(n+1)}{2}$. Without using a calculator, determine the sum of the first 1000 multiples of 5: $5 + 10 + 15 + \ldots + 5000$.

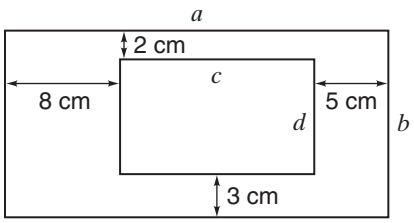
4. In how many ways can nine people be selected from a group of ten people?

5. Find all values of x for which $(4x - 5)^{2x+5} = 1$.

6. The divisors of 120 add up to 360. What is the sum of the *reciprocals* of the divisors of 120?

7. To enjoy a 20-oz pitcher of orange juice longer, Ignacio follows this procedure. On day 1, he drinks only 1 oz, and fills the pitcher with water. On day 2, he drinks only 2 oz of the mixture and again fills the pitcher with water. On day 3, he drinks only 3 oz of the mixture and again fills the pitcher with water. He continues this procedure until he empties the pitcher by drinking 20 oz of the mixture. How many ounces of water will Ignacio drink altogether?

8. How much shorter is the perimeter of the c-by-d rectangle than that of the a-by-b rectangle?



9. What is the product of $0.88\overline{8}$ and $2.33\overline{3}$?

10. Given these 12 numbers, what percent of their sum is their average?

522	223	435	1200
784	621	926	337
548	639	117	211