

Warming Up

Rosephayne chooses a 4-digit positive integer. She erases one of the digits of this integer. The remaining digits, in their original order, form a 3-digit positive integer. When Rosephayne adds this 3-digit integer to the original 4-digit integer, the result is 6031. What was the original integer?



Let's Solve Some Problems!

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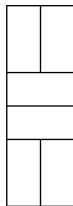
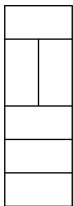
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Problem #1

How many “different-looking” 2 by 6 rectangles can be made from 1 by 2 rectangles? Each of the following is an example:



Problems #2 and #3

In the addition of the three-digit numbers shown, the letters A , B , C , D , and E each represent a single digit.

$$\begin{array}{r} A B E \\ A C E \\ + A D E \\ \hline 2 0 1 7 \end{array}$$

What is the value of $A + B + C + D + E$?

Exactly 120 tickets were sold for a concert. The tickets cost \$12 each for adults, \$10 each for seniors, and \$6 each for children. The number of adult tickets sold was equal to the number of child tickets sold. The total revenue from the ticket sales was \$1100. What was the number of senior tickets sold?



Problems #4 and #5

In the Fibonacci sequence, $1, 1, 2, 3, 5, \dots$, each term after the second is the sum of the previous two terms. How many of the first 100 terms of the Fibonacci sequence are odd?

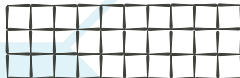
Toothpicks are used to make rectangular grids, as shown. Note that a total of 31 identical toothpicks are used in the 1×10 grid. How many toothpicks are used in a 43×10 grid?



1×10



2×10



3×10

