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Numerical Brain Teasers

Exercise Your Mind

The Pragmatic Bookshelf

Raleigh, North Carolina

The Pragmatic Programmers

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Erica Sadun

Edited by Brian MacDonald

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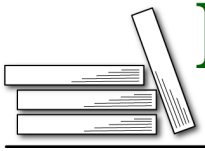

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The team that produced this book includes:

CEO: Dave Rankin
COO: Janet Furlow
Managing Editor: Tammy Coron
Development Editor: Brian MacDonald
Copy Editor: L. Sakhi MacMillan
Indexing: Potomac Indexing, LLC
Layout: Gilson Graphics
Founders: Andy Hunt and Dave Thomas

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$$5920 + 894 = 146614$$

How to Play

A digit has wandered from its normal location, perhaps intending a life of adventure. Now it is in the wrong place in the equation. It is sad and lost, the equation broken. Help identify and return it home to correct the equation and make the digit happy again.

For more information about this puzzle and its solution, turn the page. When you're ready for more puzzles like this one, see Having Fun with More Puzzles, on page ?.

About This Puzzle

Imagine, if you will, a number with restless digits. Sometimes one will wander from its place in an equation and settle somewhere new. That's fodder for a quick and fun little puzzle.

Consider the example puzzle. The weird sum tells you something has gone wrong. You'd expect to see a sum closer to 6,000 than 146,000 in this equation. What's happened, of course, is a wandering digit. One of these digits has strayed from its correct location and sat itself somewhere else.

So what broke? Is an answer immediately obvious? It's up to you to save the day, solve the equation, and move the wandering digit back home where it belongs.

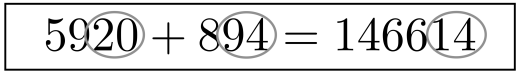
Solving the Example

In this example, the second digit of the second term, a 6, has moved a term to the right. Returning it fixes the equation.

$$5920 + 894 = 146614$$

$$5920 + 8694 = 14614$$

With these puzzles, start working from right to left. As long as the sums and the digits remain correct, omit them from consideration. For example, the final digits are 0 plus 4. That adds to 4. Correct. Next, 2 plus 9 is 11. Also correct, with a carry of 1.



Continuing, 9 plus 8 is 17. With 1 carried, that adds to 18. That partial sum definitely does not end in 6, even if you squint. Based on its size, the second term has most likely lost a digit. This is where you should consider inserting the current digit from the six-digit sum. Third from the right feels correct.

$$5920 + 894 = 146614$$

Moving that 6 from the sum to the second term changes the current equation from 9 plus 8 to 9 plus 6, or 15. Add in the carry and you get 16, a match. With this, the puzzle is solved.

$$5920 + 894 = 146614$$

Wandering digit puzzles grow harder when the digit count doesn't change. In this sample, you could tell from the size that a digit would move to the second term. When digit counts don't change, use right-to-left math and compare to the sum or difference. Deciding which digit to move becomes a tiny bit trickier. Hopefully, the puzzle is still just as much fun.

Following the page break, you'll find puzzles to work on. An answer key follows the puzzles.