

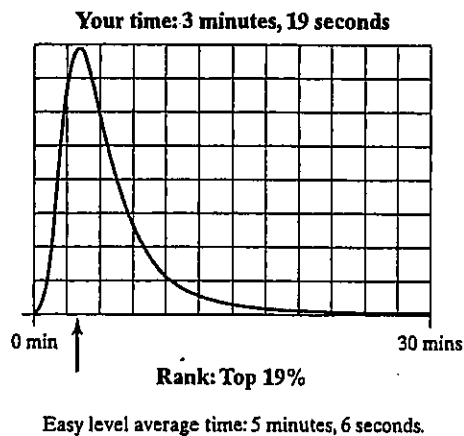
Do You Sudoku?

The sudoku craze has officially swept the globe. Here's what Will Shortz, crossword puzzle editor for the *New York Times*, said about sudoku:

As humans we seem to have an innate desire to fill up empty spaces. This might explain part of the appeal of sudoku, the new international craze, with its empty squares to be filled with digits. Since April 2005, when sudoku was introduced to the United States in The New York Post, more than half the leading American newspapers have begun printing one or more sudoku a day. No puzzle has had such a fast introduction in newspapers since the crossword craze of 1924–25.¹

Since then, millions of people have made sudoku part of their daily routines.

One of the authors played an online game of sudoku at www.websudoku.com. The graph provides information about how well he did. (His time is marked with an arrow.)



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At the end of the game, the graph was displayed above. The density curve shown was constructed from a histogram of times from 4,000,000 games played in one week at this web site. You will now use what you have learned in chapter 2 to analyze how well the author did.

1. State and interpret the percentile for the author's time of 3 minutes and 19 seconds. (Remember that smaller times indicate better performances)
2. Explain why you cannot find the z-score corresponding to the author's time.
3. Suppose the author's time to finish the puzzle had been 5 minutes and 6 seconds instead.
 - (a) Would his percentile be greater than 50%, equal to 50%, or less than 50%? Justify your answer.
 - (b) Would his z-score be positive, negative, or zero? Explain.
4. From long experience, the author's times to finish an easy Sudoku puzzle at this web site follows a Normal distribution with mean 4.2 minutes and standard deviation 0.7 minutes. In what percent of the games that he plays does the author finish an easy puzzle in less than 3 minutes and 15 seconds? Show your work. (Note: 3 minutes and 15 seconds is *not* the same as 3.15 minutes!)
5. The author's wife also enjoys playing Sudoku online. Her times to finish an easy puzzle at this web site follow a Normal distribution with mean 3.8 minutes and standard deviation 0.9 minutes. In her most recent game, she finished in 3 minutes. Whose performance is better, relatively speaking: the author's 3 minutes and 19 seconds or his wife's 3 minutes? Justify your answer.