101 Things everyone should know about math

Map Quest

You have been challenged to color the map of the United States so that no two adjacent states are colored the same. States that touch at only one corner, such as Utah and New Mexico, are not considered adjacent. What is the fewest number of colors you need to use to win the challenge?

A. 3
B. 4
C. 5
D. 6

Question No. 77 (page 51) from
101 Things Everyone Should Know About Math

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Answer to…

Map Quest

B. 4

   This result, which is true for any flat (i.e. two-dimensional) map, is known as the Four Color Theorem. In 1852, Francis Guthrie noticed this was true for a map of England and wondered if it was true for other maps. But, for decades, providing a formal proof for the theorem seemed almost impossible.

   Finally, in 1976, Kenneth Appel and Wolfgang Haken at the University of Illinois provided a satisfactory proof. What made their solution unique was that this was the first major theorem to be proved using a computer. Unfortunately, the computer's proof is not a set of theorems and equations, so it's not a proof that human beings can verify.

   Today, the theorem is generally accepted as proved, but some mathmaticians are uncomfortable with the reliance of a computer program to perform human logic.

Answer to Question No. 77 (page 145 & 146) from
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