

Keep It Going



1. Examine the first several terms in each sequence. Look for a pattern that explains how the sequence is formed. Then write a description of the pattern and a method for finding the next few terms. Give at least the next three terms.
 - a. 1, 4, 9, 16, ...
 - b. 2, 6, 18, 54, ...
 - c. 1, 4, 7, 10, ...
 - d. 1, 3, 6, 10, ...
2. Find the 100th term for the sequences in Questions 1a, 1c, and 1d. Explain how to get these values without calculating all of the previous terms.

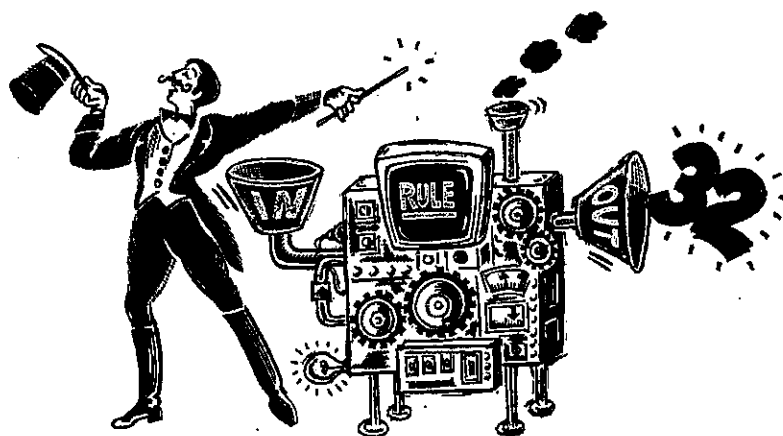
The Number Magician

A magician chooses a volunteer from the audience and says, "Pick a number, but don't tell me what it is. Add 15 to it. Multiply your answer by 3. Subtract 9. Divide by 3. Subtract 8. Now tell me your answer."

"Thirty-two," replies the volunteer.

The magician *immediately* guesses the volunteer's number.

1. What was the volunteer's number?
2. The magician couldn't possibly have worked backward that fast. How did the magician find the answer so quickly?



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