Problem of the Week. **April 19-26**

Proposed by Bernardo Ábrego and Silvia Fernández.

Two players A and B alternate turns during a game as follows: Player A starts by calling a whole number between 1 and 10. Each turn a player calls a whole number larger than the previous by at most 10. The player who calls 100 wins. For example, a game can start as A calls 3, B calls 12, A calls 22, B calls 24, A calls 25, etc.
Give a winning strategy for player A. Explain why this strategy always works.

Solution by Robert Reiner. The strategy would be for person A's numbers to be 1, 12, 23, 34, 45, 56, 67, 78, 89, 100 [regardless of what B calls]. The concept is that one way A can have a strategy would be to have some control about the amount of increase per round [one round consist of player A's call followed by player B's call]. Thus, person A would call out the number that would make the difference between his/her last number and the current number equal to 11, since any other difference can not be regularly achieved [note that since B can only increase the previous number called by A by at most 10 then, according to the rules, player A can always complete that increase to 11, by adding a number between 1 and 10 to B's increment]. Additionally, since $1 + 9\,(11) = 100$, person A's first number should be 1 so that in the tenth round, person A will be able to call out 100.

Note. All sentences in brackets were added by the organizing committee to make the solution clearer.