Problem of the Week
Problem C
Sum Program

Ruben wrote a program that takes a list of numbers as input. The program then adds each pair of adjacent numbers in the list to obtain a new list of numbers, then repeats this process with the new list until the list contains only one number. This number is then the output.

For example, if the input is $(1, 5, 3, 2)$ then the program adds the adjacent numbers in the list to obtain $(6, 8, 5)$. The program then repeats this process to obtain $(14, 13)$, and then (27). Since the list now contains only one number, the output is 27.

Let R represent Ruben's favourite number. Ruben input the numbers $(6, 4, R, 7)$ into his program and the output was 4 times his favourite number, or $4R$. What is Ruben's favourite number?