Problem 1: Recursive Sum of Digits Until Even

Compute the recursive sum of digits of an integer until the sum becomes an even or a single-digit number.

Function Prototype: even_digital_root

Input:
A single integer N ($0 \leq N \leq 10^9$)

Output:
A single integer — the even number or the single-digit result.

Sample Input:

9875

Sample Output:

2

Explanation: 9+8+7+5 = 29 → 2+9 = 11 → 1+1 = 2 (even)

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Problem 2: Second Largest and Second Smallest in Array

Find the second largest and second smallest numbers from an array using a single function.

Function Prototype: second_min_max

Input:
First line: N ($2 \leq N \leq 100$)
Second line: N space-separated integers.

Output:
Print the second largest and second smallest separated by a space.

Sample Input:

6
5 1 9 7 3 8

Sample Output:

8 3

Problem 3: Matrix Multiplication (A × B - D)

Perform standard matrix multiplication C = A × B - D.

Input:
First line: r1 c1 c2
Next r1×c1 integers for A, followed by c1×c2 integers for B, followed by r1×c2 integers for D.

Output:
Matrix C in row-major order.

Sample Input:

2 3 2
1 2 3
4 5 6
7 8
9 10
11 12
1 0
0 1

Sample Output:

57 64
139 153

Problem 4: Large Fibonacci with Overflow Detection

Compute the N-th Fibonacci number recursively. If it exceeds 32-bit unsigned integer range, print 'OVERFLOW'.

Function Prototype: fibonacci_safe

Input:
A single integer N ($0 \leq N \leq 50$)

Output:
Nth Fibonacci number or 'OVERFLOW'.

Sample Input:

47

Sample Output:

OVERFLOW

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Problem 5: Anagram Check

Check whether two strings are anagrams (contain the same letters in any order).

Function Prototype: is_anagram

Input:
Two strings separated by space (no spaces inside each string, up to 100 chars).

Output:
YES if they are anagrams, NO otherwise.

Sample Input:

LISTEN SILENT

Sample Output:

YES

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Problem 6: Diamond Pattern

Print a diamond pattern of stars using nested loops.

Function Prototype: print_diamond

Input:
A single integer N ($1 \leq N \leq 10$)

Output:
A diamond pattern of height 2N - 1.

Sample Input:

3

Sample Output:

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 ***
*****
 ***
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