Q1. Write a recursive function to calculate the factorial of a non-negative integer n. The factorial of a number n, denoted as n!, is the product of all positive integers less than or equal to n.

For example:

Factorial of 5, denoted as 5!, is calculated as: 5 \* 4 \* 3 \* 2 \* 1 = 120

Factorial of 0 is defined as 1: 0! = 1

Q2. Write a recursive function to calculate the nth Fibonacci number. The Fibonacci sequence is defined as follows: the first two numbers in the sequence are 0 and 1, and each subsequent number is the sum of the previous two. For example, the Fibonacci sequence up to the 6th term is: 0, 1, 1, 2, 3, 5.

Q3. Write a recursive function to find the sum of digits of a positive integer.

Q4. Write a recursive function to check if a string is a palindrome. A string is considered a palindrome if it reads the same forwards and backwards. For example, "racecar" and "level" are palindromes.

Q5. Write a recursive function to calculate the exponentiation of a number base raised to an integer exponent.