Recursive function

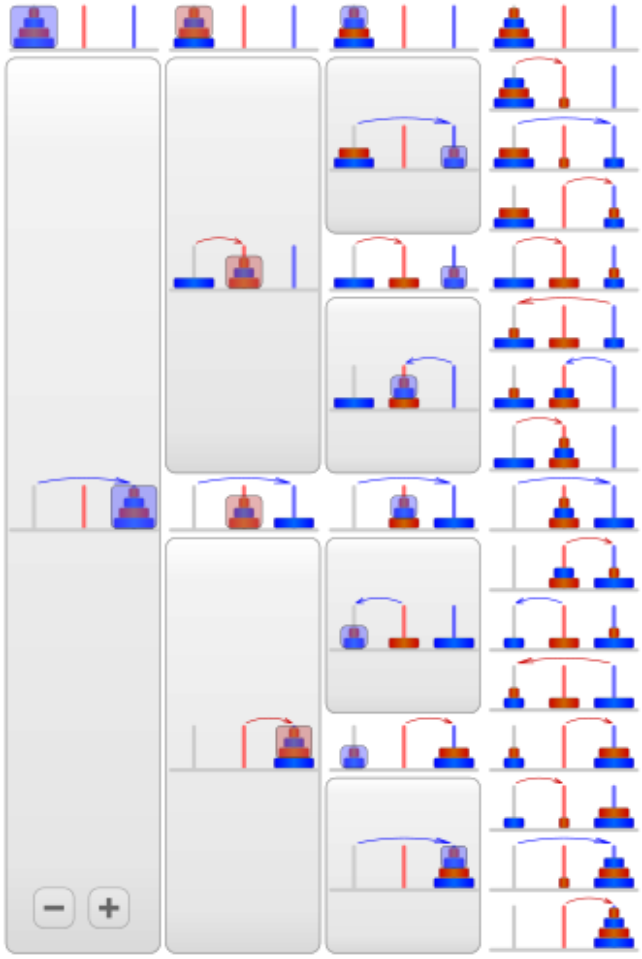
1.Write a recursive function that returns the factorial of a number.

2.Write a recursive function that takes the base and exponent (two integers) and calculates the power.

3.Write a recursive function that receives the number parameter and returns the sum of numbers from one to number.

4.According to a legend, an Indian temple has 3 pillars, and at the beginning of the creation of the world, God placed 64 rings on one of the pillars in descending order of diameter. The world will end when the nuns can move all these rings with the help of the middle column to the last column to provided that moves one ring at a time and the bigger ring does not fit on smaller ring. Calculate the lifetime of universe in billions of years (assume each movement takes one second).

Write a recursive function that calculates the answer to the problem.


With 4 rings.

https://upload.wikimedia.org/wikipedia/commons/2/20/Tower_of_Hanoi_recursion_SMIL.svg

5.Write a recursive function that recursively calculates the sum of the digits of a number.

6.Write a recursive function that receives a number parameter and returns the sum of the odd numbers from one to that number.

7. Write a recursive function that receives a number parameter and returns the sum of the even numbers from one to that number.

8.Write a recursive function that receives parameter n and returns the nth Fibonacci number.