

# Function

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1a) Write a function that takes 2 integers, x and y, as argument and returns value of  $x^y$ . pow() function cannot be used.

1b) Use the function described in 1a to calculate the value of  $9*a^5+13*b^2-15*c^{10}$  taking a, b, c as input.

2a) Write a function that takes an integer, n, as argument and returns 1 if it is  $2^k=n$ ; otherwise returns 0. k is some constant.

2b) Take inputs a and b. print all the  $n=2^k$  such that  $a \leq n \leq b$ . use the function described in 2a.

3a) Write a function that takes an integer as argument and returns 0 if it is not prime, or returns 1 if it is prime.

3b) Write a function which returns nth Fibonacci number, assuming zero is the 0<sup>th</sup> Fibonacci number.

3c) Use the two functions to print first k prime Fibonacci numbers, taking k as input.

# Array

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1a) Take n integers in an n sized array, and print them.

1b) Reverse the elements of an n sized array. Ex: [1,2,3,4] -> [4,3,2,1]. No additional array can be used.

1c) Scan the values of an n sized array. Create another array in which i<sup>th</sup> element is the product of all elements of 1<sup>st</sup> array, except the i<sup>th</sup>. Print the values of the new array. Nested loops cannot be used.

1d) Find the number of unique elements in an n sized array.