

Online 1 Set A

Q1. Write a recursive program to find the GCD of x and y where x, y are positive integers using the following technique. Write a main function to take the input from the user.

Sample Input	Sample Output
48 18	6

For example, to compute $\text{gcd}(48, 18)$, one proceeds as follows:

$$\begin{aligned}\text{gcd}(48, 18) &\rightarrow \text{gcd}(48 - 18, 18) = \text{gcd}(30, 18) &&\rightarrow \text{gcd}(30 - 18, 18) = \text{gcd}(12, 18) \\ &\rightarrow \text{gcd}(12, 18 - 12) = \text{gcd}(12, 6) &&\rightarrow \text{gcd}(12 - 6, 6) = \text{gcd}(6, 6).\end{aligned}$$

So $\text{gcd}(48, 18) = 6$.

Q2. Let, an integer is lucky if its last digit is 7 and it is the double of a prime number. Write a divide and conquer function to **count** and **print** the number of lucky integers in an array of n integers. Write a main function to take the input from the user.

Sample Input	Sample Output
5	14 34 4
14 5 34 4 24	3