

**1. Write a Java Program to find GCD of two given numbers.**

```
import java.io.*;
class Test {
    static int gcd(int a, int b)
    {
        while (a > 0 && b > 0) {
            if (a > b) {
                a = a % b;
            }
            else {
                b = b % a;
            }
        }
        if (a == 0) {
            return b;
        }
        return a;
    }
    public static void main(String[] args)
    {
        int a = 98, b = 56;
        System.out.println("GCD of " + a + " and " + b
            + " is " + gcd(a, b));
    }
}
```

```
D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
GCD of 98 and 56 is 14
```

2. Write a java program to LCM of TWO given number.

```
public class Test1 {  
    public static void main(String[] args) {  
        int n1 = 72, n2 = 120, lcm;  
        lcm = (n1 > n2) ?  
        while(true) {  
            if( lcm % n1 == 0 && lcm % n2 == 0 ) {  
                System.out.printf("The LCM of %d and %d is %d.", n1, n2, lcm);  
                break;  
            }  
            ++lcm;  
        }  
    }  
}
```

```
D:\ARUSA CDAC\logic building\extra questions>javac Test1.java  
  
D:\ARUSA CDAC\logic building\extra questions>java Test1  
The LCM of 72 and 120 is 360.  
D:\ARUSA CDAC\logic building\extra questions>
```

LCM is always greater than the greatest of two numbers so set the greatest of two as lcm

So we divide both the number by the greatest of two numbers , if not divisible then we increment the lcm, until both are divisible by lcm.

### 3. Write a Java Program to print all the Prime Factors of the Given Number.

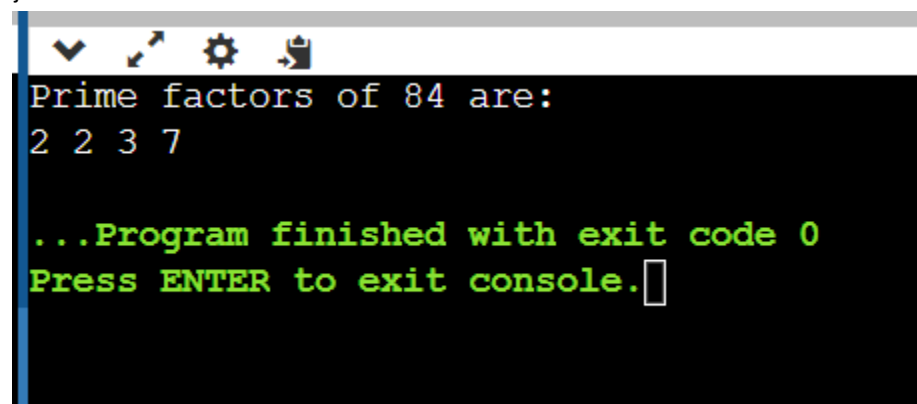
```
public class Main {

    public static void main(String[] args) {
        int number = 84;
        System.out.println("Prime factors of " + number + " are:");
        printPrimeFactors(number);
    }

    public static void printPrimeFactors(int n) {
        while (n % 2 == 0) {
            System.out.print(2 + " ");
            n /= 2;
        }

        for (int i = 3; i <= Math.sqrt(n); i += 2) {
            while (n % i == 0) {
                System.out.print(i + " ");
                n /= i;
            }
        }

        if (n > 2) {
            System.out.print(n);
        }
    }
}
```



```
Prime factors of 84 are:
2 2 3 7

...Program finished with exit code 0
Press ENTER to exit console.█
```

### 4. Check whether the Given Number is a Palindrome or NOT.

```
public class Test1 {
```

```

public static void main(String[] args) {
    int num=11,temp=11;
    int count=0;
    int res=0;
    while(num>0)
    {
        if(count == 0){
            res=num%10;
            num=num/10;
            count++;
        }
        else{
            res= res *10 ;
            res= res+num%10;
            num=num/10;
            count++;
        }
    }
    System.out.println(res);
    if(temp == res){
        System.out.println("Palindrome");
    }
    else{
        System.out.println("Not Palindrome");
    }
}
}

```

```

D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
11
Palindrome

D:\ARUSA CDAC\logic building\extra questions>

```

**5. Write a Java Program to check whether the Given Number is Prime Number or NOT.**

```

public class Test1 {
    public static void main(String[] args) {

```

```

int n=3;
boolean flag= true;
for(int i=2;i<n;i++){
    if(n%i==0){
        flag=false;
        break;
    }
}
if(flag==false){
    System.out.println("Not Prime");
}
else{
    System.out.println("prime");
}
}
}

```

```

D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
prime

D:\ARUSA CDAC\logic building\extra questions>

```

6. Write a Java Program to check whether the given number is Armstrong Number or NOT.

```

public class Test1 {
    public static void main(String[] args) {
        int number = 371, originalNumber, remainder, result = 0;
    }
}

```

```

originalNumber = number;
while (originalNumber != 0)
{
    remainder = originalNumber % 10;
    result += Math.pow(remainder, 3);
    originalNumber /= 10;
}

if(result == number)
    System.out.println(number + " is an Armstrong number.");
else
    System.out.println(number + " is not an Armstrong number.");
}
}

```

```

D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
371 is an Armstrong number.

D:\ARUSA CDAC\logic building\extra questions>

```

7. Write a Java Program to check whether the given number is Perfect Number or NOT.

```

import java.util.Scanner;
public class Test1
{
    public static void main(String args[])
    {
        long n, sum=0;
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the number: ");
        n=sc.nextLong();
        int i=1;
        while(i <= n/2)

```

```

{
if(n % i == 0)
{
sum = sum + i;
}
i++;
}
if(sum==n)
{
System.out.println(n+" is a perfect number.");
}
else
System.out.println(n+" is not a perfect number.");
}
}

```

```

D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
Enter the number: 6
6 is a perfect number.

D:\ARUSA CDAC\logic building\extra questions>

```

8. Write a Java Program to check whether the given numbers are Amicable Numbers or NOT.

```

import java.util.Scanner;
public class Test1
{
public static void main (String args[])
{
int firstDivisorSum = 0, secondDivisorSum = 0, firstNumber, secondNumber;
Scanner sc = new Scanner(System.in);
System.out.print("Enter the first number: ");
firstNumber = sc.nextInt();
System.out.print("Enter the second number: ");

```

```

secondNumber = sc.nextInt();
for(int i=1;i<firstNumber;i++)
{
if(firstNumber % i == 0)
{
firstDivisorSum = firstDivisorSum + i;
}
}
for(int i=1;i<secondNumber;i++)
{
if(secondNumber % i == 0)
{
secondDivisorSum = secondDivisorSum + i;
}
}
if((firstNumber == secondDivisorSum) && (secondNumber == firstDivisorSum))
{
System.out.println(firstNumber+", "+ secondNumber +" are amicable numbers.");
}
else
{
System.out.println(firstNumber+", "+ secondNumber +" are not amicable numbers.");
}
}
}

```

```

D:\ARUSA CDAC\logic building\extra questions>javac Test1.java

D:\ARUSA CDAC\logic building\extra questions>java Test1
Enter the first number: 12
Enter the second number: 45
12, 45 are not amicable numbers.

```

**9. Write a Java Program to check whether the given number is Ramanujan's Number or NOT.**

```


public class Main {

    public static void main(String[] args) {
        int number = 1729;
        if (isRamanujanNumber(number)) {
            System.out.println(number + " is a Ramanujan number.");
        }
    }
}

```



```
    } else {  
        System.out.println(number + " is not a Ramanujan number.");  
    }  
}  
  
public static boolean isRamanujanNumber(int n) {  
    for (int a = 1; a * a * a < n; a++) {  
        for (int b = a; a * a * a + b * b * b <= n; b++) {  
            if (a * a * a + b * b * b == n) {  
                return true;  
            }  
        }  
    }  
    return false;  
}  
}
```



```
1729 is a Ramanujan number.  
  
...Program finished with exit code 0  
Press ENTER to exit console. 
```

10. Write a Java Program check whether the given number is Automorphic Number or NOT.

```
import java.util.Scanner;

class Test1 {
    public static void main(String[] args) {
        Scanner sc= new Scanner (System.in);
        int number= sc.nextInt();
        int sqr= number*number;

        if(isAutomorphic(sqr,number))
            System.out.println(number + " is an automorphic number");
        else
            System.out.println(number + " is not an automorphic number");
    }

    static boolean isAutomorphic(int square, int number){
        while(number >0){
            if(square%10!=number%10)
                return false;
            square/=10;
            number/=10;
        }
        return true;
    }
}
```

```
D:\ARUSA CDAC\logic building\extra questions>javac Test1.java
```

```
D:\ARUSA CDAC\logic building\extra questions>java Test1
```

```
5
```

```
5 is an automorphic number
```

```
D:\ARUSA CDAC\logic building\extra questions>
```