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

**Solution-**

import java.util.Scanner;

public class question1{

private static int findGCD (int a, int b)

{

if( a % b ==0)

return b;

else

return findGCD(b,a%b);

}

public static void main(String[] args)

{

Scanner sc = new Scanner(System.in);

System.out.println("Enter two value");

int a = sc.nextInt();

int b = sc.nextInt();

int g = findGCD(a,b);

System.out.println("GCD :" +g);

}

}

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

**Solution-**

import java.util.\*;

public class Question2{

static int lcm(int a, int b, int m)

{

m = m+b;

if ((m % a ==0) && (m % b==0))

return m;

return lcm(a, b, m);

}

public static void main(String[] args){

int a,b;

int m=0;

Scanner sc = new Scanner(System.in);

System.out.println("Enter two number");

a = sc.nextInt();

b= sc.nextInt();

int j= lcm (a, b, m);

System.out.println("LCM is: " + j);

}

}

**Question 3: Write a Java Program to print all the Prime Factorsof the Given Number.**

**Solution-**

import java.util.Scanner;

public class Question3

{

@SuppressWarnings("resource")

public static void main(String[] args)

{

Scanner scanner = new Scanner(System.in);

System.out.print("Input a number: ");

int n = scanner.nextInt();

if (n <= 0) {

System.out.println("Please enter a positive number.");

return;

}

for (int i = 2; i \* i <= n; i++) {

while (n % i == 0) {

System.out.println(i);

n /= i;

}

} scanner.close();

if (n > 1)

System.out.println("PrimeFactors: " + n);

}

}

**Question 4: Check whether the Given Numberis a Palindrome or NOT.**

**Ans-**

public class Question4

{

static boolean isPalindrome(int n)

{

int divisor = 1;

while (n / divisor >= 10)

divisor \*= 10;

while (n != 0)

{

int leading = n / divisor;

int trailing = n % 10;

if (leading != trailing)

return false;

n = (n % divisor) / 10;

divisor = divisor / 100;

}

return true;

}

public static void main(String args[])

{

if(isPalindrome(1001))

System.out.println("Yes, it is Palindrome");

else

System.out.println("No, not Palindrome");

}

}

**Question5: Write a Java Program to check whether the Given Number is Prime Number or NOT.**

**Solution-**

import java.util.Scanner;

public class Question5 {

public static void main(String[] args) {

int num, i;

boolean isPrime = true;

try (Scanner s = new Scanner(System.in)) {

System.out.print("Enter a Number: ");

num = s.nextInt();

}

if (num <= 1) {

System.out.println("\nIt is not a Prime Number.");

return;

}

for (i = 2; i <= Math.sqrt(num); i++) {

if (num % i == 0) {

isPrime = false;

break;

}

}

if (isPrime)

System.out.println("\nIt is a Prime Number.");

else

System.out.println("\nIt is not a Prime Number.");

}

}

**Question6: . Write a Java Program to check whether the given number is Armstrong Number or NOT.**

import java.util.Scanner;

public class Question6 {

public static void main(String args[]) {

Scanner sc = new Scanner(System.in);

// Prompt the user for input

System.out.print("Enter a number to check if it's an Armstrong number: ");

int num = sc.nextInt();

// Calculate the sum of cubes of digits

int sum = 0;

int originalNumber = num;

while (num > 0) {

int digit = num % 10;

sum += digit \* digit \* digit;

num /= 10;

}

// Check if the original number is equal to the calculated sum

if (sum == originalNumber) {

System.out.println(originalNumber + " is an Armstrong number.");

} else {

System.out.println(originalNumber + " is not an Armstrong number.");

}

sc.close();

}

}

**Question7: Write a Java Program to check whether the given number is Perfect Number or NOT.**

import java.util.Scanner;

public class Question7

{

public static void main(String[] args)

{

int n, sum = 0;

Scanner s = new Scanner(System.in);

System.out.print("Enter the number: ");

n = s.nextInt();

for(int i = 1; i < n; i++)

{

if(n % i == 0)

{

sum = sum + i;

}

}

if(sum == n)

{

System.out.println("Given number is a perfect number");

}

else

{

System.out.println("Given number is not a perfect number");

}

}

int divisor(int x)

{

return x;

}

}

**Question8: Write a Java Program to check whether the given numbers are Amicable Numbers or NOT.**

import java.util.Scanner;

public class Question8

{

public static void main(String args[])

{

Scanner in = new Scanner(System.in);

System.out.print("enter 1st number: ");

int num1 = in.nextInt();

System.out.print("enter 2nd number: ");

int num2 = in.nextInt();

int sum\_num1 = 0, sum\_num2 = 0;

for (int i = 1; i <= num1; i++) {

if (num1 % i == 0)

sum\_num1 += i;

}

for (int i = 1; i <= num2; i++) {

if (num2 % i == 0)

sum\_num2 += i;

}

if (sum\_num1 == sum\_num2)

System.out.println("These numbers are amicable.");

else

System.out.println("These numbers are not amicable.");

}

}

**Question9: Write a Java Program to check whether the given number is Ramanujam's Number or NOT.**

import java.util.Scanner;

public class Question9 {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter an integer: ");

int N = scanner.nextInt();

for (int a = 1; a <= N; a++) {

int a3 = a \* a \* a;

if (a3 > N) break;

for (int b = a; b <= N; b++) {

int b3 = b \* b \* b;

if (a3 + b3 > N) break;

for (int c = a + 1; c <= N; c++) {

int c3 = c \* c \* c;

if (c3 > a3 + b3) break;

for (int d = c; d <= N; d++) {

int d3 = d \* d \* d;

if (c3 + d3 > a3 + b3) break;

if (c3 + d3 == a3 + b3) {

System.out.println((a3 + b3) + " = " + a + "^3 + " + b + "^3 = " + c + "^3 + " + d + "^3");

}

}

}

}

}

scanner.close();

}

}

**Question10: Write a Java Program check whether the given number is Automorphic Number or NOT.**

import java.util.\*;

public class Question10 {

static boolean isAutomorphic(int n)

{

int sq = n\* n;

while (n > 0) {

if (n % 10 != sq % 10)

return false;

n /= 10;

sq /= 10;

}

return true;

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a number: ");

int num = scanner.nextInt();

if (isAutomorphic(num))

System.out.println(num + " is automorphic number.");

else

System.out.println(num + " is not an automorphic number.");

}

}