**Question 1**

public class Pattern

{

public void main()

{

for(int i=0;i<5;i++)

{

for(int j=0;j<=i;j++)

{

System.out.print("\* ");

}

System.out.println();

}

}

}

**OUTPUT**

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

**Question 2**

public class Pattern2

{

public static void main(String args[])

{

for(int i=0;i<5;i++)

{

for(int j=i;j<5;j++)

{

System.out.print(" ");

}

for(int j=0;j<=i;j++)

{

System.out.print("\* ");

}

System.out.println();

}

}

}

**OUTPUT**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**Question 3**

import java.util.\*;

public class Interest

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter the principle amount");

float pa=sc.nextFloat();

System.out.println("Enter the time in years");

float t=sc.nextFloat();

System.out.println("Enter the rate of interest");

float i=sc.nextFloat();

double interest;

interest=(pa\*t\*i)/100;

System.out.println("Interest is "+interest);

}

}

**OUTPUT**

Enter the principle amount

1000

Enter the time in years

2

Enter the rate of interest

5

Interest is 100.0

**Question 4**

(a)

import java.util.\*;

public class Swap

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter the 1st number");

int a=sc.nextInt();

System.out.println("Enter the 2nd number");

int b=sc.nextInt();

int temp;

System.out.println("Initial values");

System.out.println("a="+a);

System.out.println("b="+b);

temp=a;

a=b;

b=temp;

System.out.println("New values");

System.out.println("a="+a);

System.out.println("b="+b);

}

}

**OUTPUT**

Enter the 1st number

10

Enter the 2nd number

20

Initial values

a=10

b=20

New values

a=20

b=10

(b)

import java.util.\*;

public class Swap3

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter the 1st number");

int a=sc.nextInt();

System.out.println("Enter the 2nd number");

int b=sc.nextInt();

System.out.println("Enter the 3rd number");

int c=sc.nextInt();

int temp;

System.out.println("Initial values");

System.out.println("a="+a);

System.out.println("b="+b);

System.out.println("c="+c);

a = a + b + c;

b = a - (b + c);

c = a - (b + c);

a = a - (b + c);

System.out.println("New values");

System.out.println("a="+a);

System.out.println("b="+b);

System.out.println("c="+c);

}

}

**OUTPUT**

Enter the 1st number

2

Enter the 2nd number

4

Enter the 3rd number

6

Initial values

a=2

b=4

c=6

New values

a=6

b=2

c=4

**Question 5**

import java.util.\*;

public class OddEven

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

if(n%2==0)

System.out.println("The number is even");

else

System.out.println("The number is odd");

}

}

**OUTPUT**

Enter a number

10

The number is even

**Question 6**

import java.util.\*;

public class Fraction

{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

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

double a=sc.nextDouble();

int b= (int) a;

double c= a - b;

c=c\*100;

int k = (int) c;

System.out.println(b+" "+k);

}

}

**OUTPUT**

Enter a number

10.25

10 25

**Question 7**

|  |
| --- |
|  |
| import java.util.Scanner;  public class Largest  {  public static void main(String[] args)  {  Scanner sc = new Scanner(System.in);  System.out.println("Enter 3 numbers");  int a=sc.nextInt();  int b=sc.nextInt();  int c=sc.nextInt();  if(a>b && a>c)  {  if(b>c)  System.out.println("Largest is "+a+" Second Largest is "+b);  else  System.out.println("Largest is "+a+" Second Largest is "+c);  }  else if(b>a && b>c)  {  if(a>c)  System.out.println("Largest is "+b+" Second Largest is "+a);  else  System.out.println("Largest is "+b+" Second Largest is "+c);  }  else if(c>a && c>b)  {  if(a>b)  System.out.println("Largest is "+c+" Second Largest is "+a);  else  System.out.println("Largest is "+c+" Second Largest is "+b);  }  }  } |  |

**OUTPUT**

Enter 3 numbers

12

25

11

Largest is 25 Second Largest is 12

**Question 8**

|  |
| --- |
|  |

import java.util.Scanner;

public class OddEvenSum

{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

int esum=0,osum=0;

for(int i=0;i<=n;i++)

{

if(i%2==0)

esum=esum+i;

else

osum=osum+i;

}

System.out.println("Even sum = "+esum+"\nOdd sum = "+osum);

}

}

**OUTPUT**

Enter a number

10

Even sum = 30

Odd sum = 25

**Question 9**

import java.util.Scanner;

public class Reverse

{

public static void main(String[] args)

{

int rev=0,d;

System.out.println("Enter a number to reverse" );

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

while(n!=0)

{

d=n%10;

rev=(rev\*10)+d;

n=n/10;

}

System.out.println("Reverse Number is = "+rev);

}

}

**OUTPUT**

Enter a number to reverse

123456789

Reverse Number is = 987654321

**Question 10**

import java.util.\*;

import static java.lang.Math.log10;

public class Words

{

public static void main(String[] args)

{

Scanner sc=new Scanner(System.in);

int n,num=0,digits;

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

n=sc.nextInt();

digits=(int)log10(n);

while(n!=0)

{

num=(num\*10)+(n%10);

n/=10;

}

digits=digits-((int)log10(num));

while(num!=0)

{

switch(num%10)

{

case 0:

System.out.println("Zero ");

break;

case 1:

System.out.println("One ");

break;

case 2:

System.out.println("Two ");

break;

case 3:

System.out.println("Three ");

break;

case 4:

System.out.println("Four ");

break;

case 5:

System.out.println("Five ");

break;

case 6:

System.out.println("Six ");

break;

case 7:

System.out.println("Seven ");

break;

case 8:

System.out.println("Eight ");

break;

case 9:

System.out.println("Nine ");

break;

}

num/=10;

}

}

}

**OUTPUT**

Enter the number

125

One

Two

Five

**Question 11**

import java.util.\*;

public class Sequence {

public static void main(String arg[]){

Scanner sc = new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit=sc.nextInt();

for(int i=2;i<=limit;i=i+2){

if(i==2)

System.out.print(i\*i);

else

System.out.print(","+i\*i);

}

}

}

**OUTPUT**

Enter the limit:

8

4,16,36,64

**Question 12**

import java.util.\*;

public class Sequence12 {

public static void main(String arg[]){

Scanner sc = new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit=sc.nextInt();

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

if(i%2!=0) {

if (i == 1)

System.out.print(i \* -1);

else

System.out.print("," + i \* -1);

}

else

System.out.print(","+i);

}

}

}

**OUTPUT**

Enter the limit:

8

-1,2,-3,4,-5,6,-7,8

**Question 13**

import java.util.\*;

public class Sequence13 {

public static void main(String arg[]){

int product;

Scanner sc = new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit=sc.nextInt();

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

product=1;

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

product=product\*i;

}

if(i==1)

System.out.print(product);

else

System.out.print(","+product);

}

}

}

**OUTPUT**

Enter the limit:

8

1,4,27,256,3125,46656,823543,16777216

**Question 14**

import java.util.\*;

public class Sequence14 {

public static void main(String arg[]){

int first,second,third,next;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit= sc.nextInt();

first=1;

second=4;

third=7;

for(int i=4;i<=limit;i++){

if(i==4)

System.out.print(first+","+second+","+third);

next=first+second+third;

System.out.print(","+next);

first=second;

second=third;

third=next;

}

}

}

**OUTPUT**

Enter the limit:

8

1,4,7,12,23,42,77,142

**Question 15**

import java.util.\*;

public class Sequence15 {

public static void main(String arg[]){

Scanner sc=new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit=sc.nextInt();

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

{

if(i==4)

continue;

else{

if(i==1)

System.out.print(i\*i);

else

System.out.print(","+i\*i);

}

}

}

}

**OUTPUT**

Enter the limit:

8

1,4,9,25,36,49,64

**Question 16**

import java.util.\*;

public class Sequence16 {

public static void main(String arg[]){

int factor=0,j=4;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the limit: ");

int limit= sc.nextInt();

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

if(i%2!=0) {

if (i == 1) {

System.out.print(i);

factor = i;

}

else{

factor=factor+j;

System.out.print(","+factor);

j=j+8;

}

}

else{

factor=factor+j;

System.out.print(","+factor);

j=j+4;

}

}

}

}

**OUTPUT**

Enter the limit:

8

1,5,13,29,49,77,109,149

**Question 17**

import java.util.\*;

public class PrimeCount {

public static void main(String arg[]){

int i,j,count=0;

Scanner sc = new Scanner(System.in);

System.out.print("Enter lower limit: ");

int n=sc.nextInt();

System.out.print("Enter upper limit: ");

int m=sc.nextInt();

System.out.print("Prime number between "+n+" and "+m+": ");

for(i=n;i<=m;i++) {

for (j = 2; j <= i / 2; j++) {

if (i % j == 0)

break;

}

if (j > i / 2)

System.out.print(i+" ");

}

}

}

**OUTPUT**

Enter lower limit: 12

Enter upper limit: 15

Prime number between 12 and 15: 13

**Question 18**

import java.util.\*;

public class Factorial {

public static void main(String arg[]){

int fact=1;

Scanner sc=new Scanner(System.in);

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

int n=sc.nextInt();

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

fact=fact\*i;

}

System.out.print("Factorial of "+n+" : "+fact);

}

}

**OUTPUT**

Enter a number: 6

Factorial of 6 : 720

**Question 19**

import java.util.\*;

public class DecToBin {

public static void main(String arg[]){

int index=0;

Scanner sc=new Scanner(System.in);

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

int decimalNum=sc.nextInt();

int[] binaryNum=new int[20];

while(decimalNum>0){

binaryNum[index]=decimalNum%2;

index++;

decimalNum=decimalNum/2;

}

System.out.print("Binary Number: ");

for(int i=index-1;i>=0;i--){

System.out.print(binaryNum[i]);

}

}

}

**OUTPUT**

Enter a decimal number: 100

Binary Number: 1100100

**Question 20**

import java.util.\*;

import java.lang.Math;

public class BinToDec {

public static void main(String arg[]){

double decimalNum=0;

Scanner sc=new Scanner(System.in);

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

int binaryNum=sc.nextInt();

int i=0;

while(binaryNum>0){

int temp=binaryNum%10;

decimalNum=decimalNum+(temp\*Math.pow(2,i));

i++;

binaryNum=binaryNum/10;

}

System.out.print("Decimal number: "+decimalNum);

}

}

**OUTPUT**

Enter a binary number: 1100100

Decimal number: 100.0

**Question 21**

public class series1{

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter N: ");

        int n = sc.nextInt();

        int val=1;

        for(int i=1;i<n;i++){

            val+=(i-1)\*(i-1);

            if(i%2==0)

                System.out.print("-"+val+" ");

            else

                System.out.print(val+" ");

        }

    }

}

**OUTPUT**

1, -(1 + 1\*1)+ (2+ 2\*2)+ -(6+ 3\*3)

1, -2, 6, -15

**Question 22**

import java.util.\*;

public class Fibonacci {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

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

        int n = sc.nextInt();

        int a = 1, b = 1, c, i = 2;

        System.out.print(a + " " + b+" ");

        while (i < n) {

            c = a + b;

            System.out.print(c + " ");

            a = b;

            b = c;

            i++;

        }

    }

}

**OUTPUT**

Enter a number:

10

1 1 2 3 5 8 13 21 34 55

**Question 23**

import java.util.Scanner;

public class series2 {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter N: ");

        int n = sc.nextInt();

        int Arr[] = new int[n];

        Arr[0] = 1;

        Arr[1] = -2;

        for (int i = 2; i < n; i++) {

            if (i % 2 == 0)

                Arr[i] = Arr[i - 2] + 3;

            else

                Arr[i] = Arr[i - 2] - 4;

        }

        for (int i = 0; i < n; i++)

            System.out.print(Arr[i]+" ");

    }

}

**OUTPUT**

Odd number differ by 3

Even numbers differ by -4

**Question 24**

import java.util.\*;

public class Power {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter X:");

        int x = sc.nextInt();

        System.out.print("Enter n:");

        int n = sc.nextInt();

        //int r = ;

        System.out.println(pow(x, n));

    }

    public static int pow(int x, int n) {

        int result = 1;

        while(n!=0) {

            result \*= x;

            n--;

        }

        return result;

    }

}

**OUTPUT**

Enter X:3

Enter n:4

81

**Question25**

import java.util.\*;

public class reverseString {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter a string:");

        String str = sc.next();

        String rstr = "";

        for (int i = 0; i < str.length(); i++) {

            char ch = str.charAt(i);        //extracts character

            rstr = ch + rstr;

        }

        System.out.println(rstr);

    }

}

**OUTPUT**

Enter a string: Cement

tnemeC

**Question 26**

import java.util.Scanner;

public class Pallindrome {

    public static String reverseString(String str){

        String rstr = "";

        for (int i = 0; i < str.length(); i++) {

            char ch = str.charAt(i);

            rstr = ch + rstr;

        }

       return rstr;

    }

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter a string:");

        String str = sc.next();

        String rstr=reverseString(str);

        if(str.equalsIgnoreCase(rstr))

            System.out.println("Pallindrome");

        else

            System.out.println("Not Pallindrome");

    }

}

**OUTPUT**

// i/p: madam    o/p: Pallindrome

// i/p: Madam    o/p: Pallindrome

//i/p: pizza        o/p: NotPallindrome

**Question 27**

import java.util.\*;

public class Armstrong {

 public static void main(String args[]){

    Scanner sc=new Scanner(System.in);

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

    int n=sc.nextInt();

    int sum=0,ns=n;

    while(ns>0){

        int d=ns%10;

        sum+=d\*d\*d;

        ns/=10;

    }

    if(n==sum)

        System.out.println("Armstrong Number");

    else

        System.out.println("Not Armstrong Number");

 }

}

**OUTPUT**

Enter number:125

Not Armstrong Number

Enter number:153

Armstrong Number

**Question 28**

import java.util.Scanner;

public class linearSearch {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter Array Size: ");

        int n = sc.nextInt();

        int Arr[]=new int[n];

        System.out.print("Enter Array Elements: ");

        for (int i = 0; i < n; i++)

            Arr[i] = sc.nextInt();

        System.out.print("Enter element to be searched: ");

        int e = sc.nextInt();

        boolean flag = false;

        for (int i = 0; i < n; i++) {

            if (Arr[i] == e)

            {flag = true;

                 break;

            }

        }

        if (flag==true)

            System.out.print("Element found");

        else

            System.out.print("Element not found");

    }

}

**OUTPUT**

Enter Array Size: 5

Enter Array Elements: 25 89 65 74 35

Enter element to be searched: 35

Element found

**Question 29**

import java.util.Scanner;

public class binarySearch {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter Array Size: ");

        int n = sc.nextInt();

        int Arr[] = new int[n];

        System.out.print("Enter Array Elements: ");

        for (int i = 0; i < n; i++)

            Arr[i] = sc.nextInt();

        System.out.print("Enter element to be searched: ");

        int e = sc.nextInt();

        boolean flag = false;

        int low=0, high=n-1, mid=n/2;

        while(low<high) {

            int d=Arr[mid];

            if (e > d)

                low = mid + 1;

            else if (e < d)

                high = mid- 1;

            else if (e == d) {

                flag = true;

                break;

             }

            mid=(high+low)/2;

        }

        if (flag == true)

            System.out.print("Element found");

        else

            System.out.print("Element not found");

    }

}

**OUTPUT**

Enter Array Size: 5

Enter Array Elements: 12 34 36 48 95

Enter element to be searched: 48

Element found

Enter Array Size: 5

Enter Array Elements: 14 78 95 123 564

Enter element to be searched: 854

Element not found