1.

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int l=sc.nextInt();

int b=sc.nextInt();

System.out.println("area :"+(l\*b));

}

}

Output :

4

3

area :12

2.

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int x=n;

int s=0,r;

while(n>0){

r=n%10;

s+=(r\*r\*r);

n/=10;

}

if (x==s)

System.out.println("armstrong");

else

System.out.println("not armstrong");

}

}

Output:

153

Armstrong

123

not Armstrong

3

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int x=n;

int s=0,r;

while(n>0){

r=n%10;

s=s\*10+r;

n/=10;

}

if (x==s)

System.out.println("palindrome");

else

System.out.println("not palindrome");

}

}

Output:

121

Palindrome

123

not palindrome

4

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

ArrayList<Integer> primes=new ArrayList<Integer>();

boolean b[]=new boolean[n+1];

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

if (b[i]==false){

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

b[j]=true;

}

}

for(int i=2;i<=n;i++)

if(b[i]==false)

primes.add(i);

System.out.println(primes);

}

}

Output:

20

[2, 3, 5, 7, 11, 13, 17, 19]

5.

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int n=sc.nextInt();

int m=sc.nextInt();

if(n%2!=0)

n+=1;

for(int i=n;i<=m;i+=2)

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

}

}

Output:

1

21

2 4 6 8 10 12 14 16 18 20

Questions:

**1**.**Abstraction** is the process of hiding certain details and showing only essential information to the user.Abstraction can be achieved with either **abstract classes** or [**interfaces**](https://www.w3schools.com/java/java_interface.asp).

**2.** Encapsulation is defined as the wrapping up of data under a single unit. It is the mechanism that binds together code and the data it manipulates.Other way to think about encapsulation is, it is a protective shield that prevents the data from being accessed by the code outside this shield.

**3.** The Java Development Kit (JDK) is one of three core technology packages used in Java programming, along with the JVM (Java Virtual Machine) and the JRE (Java Runtime Environment). The JDK allows developers to create Java programs that can be executed and run by the JVM and JRE

**4**. Java Virtual Machine (JVM) is a engine that provides runtime environment to drive the Java Code or applications. It converts Java bytecode into machines language. JVM is a part of Java Run Environment (JRE). In other programming languages, the compiler produces machine code for a particular system. However, Java compiler produces code for a Virtual Machine known as Java Virtual Machine.

**5.** Inheritance can be defined as the process where one class acquires the properties (methods and fields) of another.

**6.** When you compile a Java program it creates .class file which is collection of byte code, these byte code are not machine instruction instead they are instruction which Java virtual machine can understand. Since every Java program runs on Java virtual machine, same byte code can be run on any platform. key is byte code is not machine instruction they are platform independent instruction to JVM. On the other hand JVM or Java virtual machine is platform dependent because it converts byte code into machine level instruction which is platform specific and that's why you have different version of JDK and JRE for windows and Linux because both JDK and JRE comes with Java virtual machine.

**7.syntax:** java main method

public static void main(String[] args)

**8.** Conditional operators are used to evaluate a condition that's applied to one or two [boolean](https://www.thoughtco.com/definition-of-bool-958287) expressions. The result of the evaluation is either true or false.

**9.** In java we have two categories of data type: 1) Primitive data types 2) Non-primitive data types

**10.** A constant is a variable whose value **cannot change once it has been assigned.**

To define a variable as a constant, we just need to add the keyword “**final**” in front of the variable declaration.

Syntax

final float pi = 3.14f;