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Question no 1

interface Shape{

    double pi =3.14;

    public double perimeter();

    public double area();

}

class Circle implements Shape{

    float radius;

    Circle(float r){

        radius = r;

    }

    public double area(){

        return pi\*radius\*radius;

    }

    public double perimeter(){

        return 2\*pi\*radius;

    }

}

class Ecllipse implements Shape{

    float a,b;

    Ecllipse(float a,float b){

        this.a = a;

        this.b=b;

    }

    public double perimeter(){

        return (2\*pi\*Math.sqrt(a\*a+b\*b));

    }

    public double area(){

        return pi\*a\*b;

    }

}

public class Main

{

public static void main(String[] args) {

    Circle c = new Circle(5.0f);

    Ecllipse e = new Ecllipse(3.0f,4.0f);

    System.out.println("area of circle  is "+ c.area());

    System.out.println("area of ellipse is "+ e.area());

    System.out.println("perimeter of circle  is "+ c.perimeter());

    System.out.println("perimeter of ecclipse  is "+ e.perimeter());

}

}

Question 2

class Vehicle{

    int capacity;

    float consumption;

    float netdistance;

    Vehicle(int c,float cons,float dist){

        capacity=c;

        consumption=cons;

        netdistance=dist;

    }

}

class Car extends Vehicle{

    Car(int c,float cons,float dist){

        super(c,cons,dist);

    }

    float compute\_distance(){

        return capacity\*(100/consumption);

    }

    float refuel(float d){

        return d/netdistance;

    }

}

class Truck extends Vehicle{

    Truck(int c,float cons,float dist){

        super(c,cons,dist);

    }

    float compute\_distance(){

        return capacity\*(100/consumption);

    }

    float refuel(float d){

        return d/netdistance;

    }

}

public class Main

{

public static void main(String[] args) {

    Car c = new Car(78,10,600);

    Truck t = new Truck(120,30,600);

    System.out.println("the distance travelled by car is  "+ c.compute\_distance());

    System.out.println("the distance travelled by car is  "+ t.compute\_distance());

    System.out.println("no of times refuel by car is  "+ c.refuel(500));

    System.out.println("no of times refuel by car is  "+ t.refuel(900));

}

}

Question 3

class Student

{

    int regno;

    String name, dept;

    Student(int rno, String name, String dept)

    {

        regno = rno; [this.name](http://this.name/)=name; this.dept =dept;

    }

    void display()

    {

        System.out.print(regno + " "+ name + " "+ dept);

    }

}

class Test extends Student

{

    int marks[];

    Test(int r, String n, String d, int m[])

    {

        super(r,n,d);

        marks = m;

    }

}

class Result extends Test

{

  Result(int r, String n, String d, int m[])

    {

        super(r,n,d,m);

    }

    void printResult() {

        display();

        int sum = 0;

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

         sum += marks[i];

        System.out.println("  Total Marks: "+ sum + " Average = " + (sum/5.0) );

    }

}

public class TestMain

{

    public static void main(String arg[])

    {

        int mark[]= {97,89,98,96,97};

        Result r = new Result(4159, "manoj", "CSE", mark);

        r.printResult();

        int mark2[] = {86,98,76,89,77};

        Result r2 = new Result(4895,"sandeep", "CSE", mark2);

        r2.printResult();

    }

}