```
class point {
    int x,y;
    point(){
        x=y=0;
    }
    point(int a, int b){
        x=a;
        y=b;
    }
    point(point z){
        x=z.x;
        y=z.y;
    }
    float finddistance(){
        float d = (float)Math.sqrt(x*x+y*y);
        return d;
    }
    float finddistance(int x1, int y1){
       float d = (float)Math.sqrt((x-x1)*(x-x1)+(y-y1)*(y-y1));
        return d;
    }
    float finddistance(point z){
   float d = (float)Math.sqrt((x-z.x)*(x-z.x)+(y-z.y)*(y-z.y));
        return d;
    }
    void show(){
        System.out.println("Value of x-coordinate : "+x);
        System.out.println("Value of y-coordinate : "+y);
    }
}

public class DemoPoint{
    public static void main(String args[]){
        point p1 = new point();
        point p2 = new point(3,4);
        point p3 = new point(p2);
        p1.show();
        p2.show();
        p3.show();
        System.out.println(p2.finddistance());
        System.out.println(p2.finddistance(1,1));
        System.out.println(p2.finddistance(p1));
    }
}

public class rationalDemo {
    public static void main(String [] args){
        rational r1=new rational(2,3);
        rational r2=new rational(4,6);
```

```
        rational Add_res;
        Add_res=r1.add(r2);
        rational Sub_res;
        Sub_res =r1.subtract(r2);
        rational mul_res;
        mul_res=r1.mul(r2);
        rational div_res;
        div_res=r1.divide(r2);

   System.out.println("The value of r1: "+r1.num+"/"+r1.denum);
   System.out.println("The value of r2: "+r2.num+"/"+r2.denum);
        if(Add_res.num==0){
            System.out.println("The sum of r1 and r2: 0");
        }
        else{
        System.out.println("The sum of r1 and r2:
"+Add_res.num+"/"+Add_res.denum);
        }

        if(Sub_res.num==0){
          System.out.println("The difference of r1 and r2: 0");
        }
        else{
            System.out.println("The difference of r1 and r2:
"+Sub_res.num+"/"+Sub_res.denum);
        }

        if(mul_res.num==0){
            System.out.println("The product of r1 and r2: 0");
        }
        else{
            System.out.println("The product of r1 and r2:
"+mul_res.num+"/"+mul_res.denum);
        }
        if(div_res.num==0){
            System.out.println("The division of r1 and r2: 0");
        }
        else if(div_res.num==div_res.denum){
            System.out.println("The division of r1 and r2: 1");
        }
        else{
        System.out.println("The division of r1 and r2:
"+div_res.num+"/"+div_res.denum);
        }
    }
}

class rational{
    int num;
```

```
    int denum;
    rational(int x,int y){
        num=x;
        denum=y;
    }
    rational add(rational a){
        rational res=new rational(0,0);
        res.num=0;
        res.denum=0;
        res.num=(num*a.denum)+(a.denum*num);
        res.denum=denum*a.denum;
        return res;
    }
    rational subtract(rational a){
        rational res =new rational(0,0);
        res.num=0;
        res.denum=0;
        res.num=(num*a.denum)-(a.denum*num);
        res.denum=denum*a.denum;
        return res;
    }
    rational mul(rational a){
        rational res=new rational (0,0);
        res.num=num*a.num;
        res.denum=denum*a.denum;
        return res;
    }
    rational divide(rational a){
        rational res=new rational (0,0);
        res.num=num*a.denum;
        res.denum=denum*a.num;
        return res;
    }
    boolean check(rational a){
        if(num/denum==a.num/a.denum){
            return true;
        }
        else{
            return false;
        }
    }
    void show()
    {
        System.out.println(num+"/"+denum);
    }
}
```