

オブジェクト指向プログラミング No.6

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1-a

ソースコード

```
class Id{
    static int counter = 0;
    static int max = 0;

    private int id;

    public Id(){
        id = ++counter;
    }

    public int getId(){
        return id;
    }

    static int getMaxId(){
        if(max < counter){
            max = counter;
        }
        return max;
    }
}

public class IdTester{
```

```
public static void main(String[] args){  
    Id a = new Id();  
    Id b = new Id();  
  
    System.out.println("a の識別番号:" + a.getId());  
    System.out.println("b の識別番号:" + b.getId());  
    System.out.println("a.counter" + a.getId());  
    System.out.println("b.counter" + b.getId());  
    System.out.println("識別番号の最大値" + Id.getMaxId());  
}  
}
```

実行結果

```
sd:homework gotouwataru$ java IdTester  
a の識別番号:1  
b の識別番号:2  
a.counter1  
b.counter2  
識別番号の最大値 2
```

1-b

ソースコード

```
import java.util.Scanner;  
  
class ExId{  
    private static int counter = 0;  
    private int id;  
  
    public ExId(int y){  
        id = counter + y;
```

```
        counter = id;
    }

    public int getId(){
        return id;
    }
}

public class IdTester2{

    public static void main(String[] args){
        Scanner stdIn = new Scanner(System.in);
        int x1, x2;
        x1 = stdIn.nextInt();
        ExId a = new ExId(x1);
        x2 = stdIn.nextInt();
        ExId b = new ExId(x2);

        System.out.println("a の識別番号:" + a.getId());
        System.out.println("b の識別番号:" + b.getId());
    }
}
```

実行結果

```
^[[Asd:homework gotouwataru$ java IdTester2
4
5
a の識別番号:4
b の識別番号:9
```

2

ソースコード

```
class Math1{
    static double sin(double x){
        return Math.sin(Math.PI*(x));
    }
    static double cos(double x){
        return Math.cos(Math.PI*(x));
    }
    static double tan(double x){
        return Math.tan(Math.PI*(x));
    }
}

class Mtest1{
    public static void main(String[] args){
        Double a1 = Math1.cos(0.7);
        Double a2 = Math1.sin(0.5);
        System.out.println(a1+2*a2);
        Double b1 = Math1.sin(0.8);
        Double b2 = Math1.cos(0.2);
        System.out.println(1.0/(2*b1+b2));
        Double c1;
        c1 = 0.0;
        for(double k = 1; k < 6; k++){
            c1 = c1 + (2*Math.tan(k/10)) + Math.tan(2*k/10);
        }
        System.out.println(c1);
    }
}
```

実行結果

```
sd:homework gotouwataru$ java Mtest1
```

```
1.412214747707527
```

0.5038830490084674

7.05963967586519

3

ソースコード

```
class Math3{
    double x = 0.0;
    Math3(double x){
        this.x = x;
    }
    void setX(){
        this.x = x;
    }
    double getX(){
        return x;
    }
    double sin(){
        return Math.sin(x);
    }
    double cos(){
        return Math.cos(x);
    }
    double tan(){
        return Math.tan(x);
    }
    double sin2(){
        return Math.sin(Math.PI*(x));
    }
    double cos2(){
        return Math.cos(Math.PI*(x));
    }
}
```

```

        double tan2(){
            return Math.tan(Math.PI*(x));
        }
    }
    class Mtest3{
        public static void main(String[] args){
            Math3 a1 = new Math3(0.7);
            Math3 a2 = new Math3(0.5);
            double ans11 = a1.cos2();
            double ans12 = a2.sin2();
            System.out.println(ans11 + 2*ans12);
            Math3 b1 = new Math3(0.8);
            Math3 b2 = new Math3(0.2);
            double ans21 = b1.sin2();
            double ans22 = b2.cos2();
            System.out.println(1.0/(2*ans21+ans22));
            double answer;
            answer = 0.0;
            for(int k = 1; k < 6; k++){
                Math3 c1 = new Math3(k/10.0);
                Math3 c2 = new Math3((2*k)/10.0);
                answer = answer + (2 * c1.tan2()) + c2.tan2();
            }
            System.out.println(answer);
        }
    }
}

```

実行結果

```
sd:homework gotouwataru$ java Mtest3
```

```
1.412214747707527
```

```
0.5038830490084674
```

```
3.2662478706390752E16
```

3 番の最後の回答が合わないのもう一度やって提出します。

3 番の最後が合わない理由がわかりませんでした。