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Kelas: IF-46-10

Luas: 9.0

Luas: 16.0

Luas: 314.1592653589793

Luas: 150.0

Volume: 125.0

Luas: 942.4777960769379

Volume: 1570.7963267948967

```
Main.java x HasVolume.java Cube.java Square.java Tube.java
1 import java.lang.reflect.Array;
2 import java.util.ArrayList;
3
4 public class Main {
5     @ public static void displayShapeInfo(Shape shape) { 1 usage
6         System.out.println("Luas: " + shape.getArea());
7
8         if (shape instanceof HasVolume){
9             HasVolume volumeShape = (HasVolume) shape;
10            System.out.println("Volume: " + volumeShape.getVolume());
11        }
12        System.out.println("-----");
13    }
14
15    public static void main(String[] args) {
16        ArrayList<Shape> shapes = new ArrayList<>();
17
18        shapes.add(new Rectangle( length: 2.25, width: 4.0));
19        shapes.add(new Rectangle( length: 4.0, width: 4.0));
20        shapes.add(new Circle( radius: 10.0));
21        shapes.add(new Cube( side: 5.0));
22        shapes.add(new Tube( radius: 10.0, height: 5.0));
23
24        for (Shape shape : shapes) {
25            displayShapeInfo(shape);
26        }
27    }
28 }
29
```

```
Main.java HasVolume.java x Cube.java Square.java
1 public interface HasVolume { 2 usages 2 implementations
2     public double getVolume(); no usages 2 implementations
3 }
```

```
Main.java HasVolume.java Cube.java × Square.java
1 public class Cube extends Square implements HasVolume { no usages
2     Cube(double side){ no usages
3         super(side);
4     }
5
6     public double getArea() { 2 usages
7         return 6 * super.getArea();
8     }
9
10    public double getVolume(){ 1 usage
11        return Math.pow(width, 3);
12    }
13 }
```

```
Main.java HasVolume.java Cube.java Square.java ×
1 @↓ public class Square extends Rectangle { 1 usage 1 inheritor
2     Square(double side){ 1 usage
3     ⚡ super(side, side);
4     }
5 }
```

```
Main.java HasVolume.java Cube.java Square.java Tube.java x
1 public class Tube extends Circle implements HasVolume { 1 usage
2     private double height; 3 usages
3
4     Tube(double radius, double height){ 1 usage
5         super(radius);
6         this.height = height;
7     }
8
9     public double getArea(){ 2 usages
10         return 2 * Math.PI * radius * (radius + this.height);
11     }
12
13     public double getVolume(){ 1 usage
14         return Math.PI * Math.pow(radius, 2) * this.height;
15     }
16 }
```

```
Circle.java x Main.java HasVolume.java Cube.java
1 public class Circle extends Shape { 2 usages 1 inheritor
2     protected double radius; 5 usages
3
4     Circle(double radius){ 2 usages
5         this.radius = radius;
6     }
7
8     public double getArea(){ 2 usages 1 override
9         return Math.PI * Math.pow(radius, 2);
10     }
11 }
```

```
Rectangle.java x Shape.java Circle.java Main.java
1  public class Rectangle extends Shape { 3 usages 2 inheritors
2      protected double length; 2 usages
3      protected double width; 3 usages
4
5      Rectangle(double length, double width) { 3 usages
6          this.length = length;
7          this.width = width;
8      }
9
10     public double getArea() { 2 usages 1 override
11         return this.length * this.width;
12     }
13 }
```

```
Rectangle.java Shape.java x Circle.java M
1  public abstract class Shape { 5 usages 5 inheritors
2      Shape(){ 2 usages
3
4      };
5
6      public double getArea() { 2 usages 4 overrides
7          return 0;
8      }
9  }
10
```