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1  // Lab 6: Polygon
2  // I had to turn this one in late. :(
3  // Andrea Smith
4  // CSCI 1913
5
6  class Polygon
7  {
8      private int[] sideLengths;
9
10     public Polygon(int sides, int lengths)
11     {
12         int index = 0;
13         sideLengths = new int[sides];
14         for (int length: lengths)
15         {
16             sideLengths[index] = length;
17             index += 1;
18         }
19     }
20
21     public int side(int number)
22     {
23         return sideLengths[number];
24     }
25
26     public int perimeter()
27     {
28         int total = 0;
29         for (int index = 0; index < sideLengths.length; index += 1)
30         {
31             total += side(index);
32         }
33         return total;
34     }
35 }
36
37 // Begin lab
38 class Rectangle extends Polygon
39 {
40     int width = 0;
41     int length = 0;
42
43     public Rectangle(int width, int length)
44     {
45         super(4, width, length, width, length);
46         this.width = width;
47         this.length = length;

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48     }
49
50     public int area()
51     {
52         return width*length;
53     }
54
55     // perimeter is inherited
56 }
57
58
59 class Square extends Rectangle
60 {
61
62     private int length;
63
64     public Square(int length)
65     {
66         super(length, length);
67         this.length = length;
68     }
69
70     public int area()
71     {
72         return length*length;
73     }
74
75     // perimeter is inherited here also
76 }
77
78 // SHAPES. Public tests for the classes RECTANGLE and SQUARE.
79 • Comments show
80 // what each test must print, and how many points it is worth.
81
82 class Shapes
83 {
84     public static void main(String[] args)
85     {
86         Rectangle wreck = new Rectangle(3, 5);
87
88         System.out.println(wreck.side(0));        // 3 1 point.
89         System.out.println(wreck.side(1));        // 5 1 point.
90         System.out.println(wreck.side(2));        // 3 1 point.
91         System.out.println(wreck.side(3));        // 5 1 point.
92         System.out.println(wreck.area());          // 15 1 point.
93         System.out.println(wreck.perimeter());    // 16 1 point.
94     }
95 }

```

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93
94     Square nerd = new Square(7);
95
96     System.out.println(nerd.side(0));        // 7    1 point.
97     System.out.println(nerd.side(1));        // 7    1 point.
98     System.out.println(nerd.side(2));        // 7    1 point.
99     System.out.println(nerd.side(3));        // 7    1 point.
100    System.out.println(nerd.area());          // 49   1 point.
101    System.out.println(nerd.perimeter());     // 28   1 point.
102 }
103 }
104
```