

```
1  #include <iostream>
2  #include "Shapes.h"
3
4
5  int main() {
6      // Trying to declare this will give an error
7      // because it's not allowed to instantiate an
8      // object of an abstract class.
9
10     Rectangle rect(3 , 4);
11     Square q(3);
12     Circle c(3);
13
14
15     std::cout << "Rectangle: [" << rect.height() << " , " << rect.width() << "]"
16         << std::endl;
17     std::cout << "Square : [" << q.height() << " , " << q.width() << "]"
18         << std::endl;
19     std::cout << "Circle : [" << c.height() << " , " << c.width() << "]\n"
20         << std::endl;
21
22
23     std::cout << "Area: " << '\n';
24     std::cout << "+ Rectangle : " << rect.area() << std::endl;
25     std::cout << "+ Square : " << q.area() << std::endl;
26     std::cout << "+ Circle : " << c.area() << '\n' << std::endl;
27
28
29     std::cout << "Perimeter: " << '\n';
30     std::cout << "+ Rectangle : " << rect.perimeter() << std::endl;
31     std::cout << "+ Square : " << q.perimeter() << std::endl;
32     std::cout << "+ Circle : " << c.perimeter() << '\n' << std::endl;
33
34
35     std::cout << "Height and width: " << '\n';
36     std::cout << "+ Rectangle : " << rect.height() << " , " << rect.width()
37         << std::endl;
38     std::cout << "+ Square : " << q.height() << " , " << q.width()
39         << std::endl;
40     std::cout << "+ Circle : " << c.height() << " , " << c.width() << '\n'
41         << std::endl;
42
43     // Test rotation
44     Rectangle r(2 , 7);
45     std::cout << "Rectangle:" << std::endl;
46     std::cout << "[" << r.height() << " , " << r.width() << "]" rotation -> ";
47
48     r.rotate();
49
50     std::cout << "[" << r.height() << " , " << r.width() << "]" << std::endl;
51
52     std::cout << "Square:" << std::endl;
53     std::cout << "[" << q.height() << " , " << q.width() << "]" rotation -> ";
54
55     q.rotate();
56
57     std::cout << "[" << q.height() << " , " << q.width() << "]" << std::endl;
58
```

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59
60
61     std::cout << "Circle:" << std::endl;
62     std::cout << "[" << c.height() << " , " << c.width() << "]" rotation -> ";
63
64     c.rotate();
65
66     std::cout << "[" << c.height() << " , " << c.width() << "]" << std::endl;
67
68     return 0;
69 }
```