

```
1
2 import java.math.BigDecimal;
3 import java.text.DecimalFormat;
4 public class R_RS{
5
6
7     public static void sweetWine(double br, double rs){
8         double [] brix = {17.3,19, 20.6, 22.4, 22.8, 23.1, 23.2, 24,
24.8,25.7};
9         double density, min = brix[0];
10
11         // searches nearest brix.
12         for(int i=1; i<brix.length;i++){
13             if(Math.abs(br - brix[i])<Math.abs(br - brix[i-1]))
14                 min = brix[i];
15             else
16                 break;
17         }
18         // finds the right equation
19         if( min == 17.3)
20             density = equation17(rs);
21         else if( min == 19)
22             density = equation19(rs);
23         else if( min == 20.6)
24             density = equation20_6(rs);
25         else if( min == 22.4)
26             density = equation22_4(rs);
27         else if( min == 22.8)
28             density = equation22_8(rs);
29         else if( min == 23.1)
30             density = equation23_1(rs);
31         else if( min == 23.2)
32             density = equation23_2(rs);
33         else if( min == 24)
34             density = equation24(rs);
35         else if( min == 24.8)
36             density = equation24_8(rs);
37         else
38             density = equation25_7(rs);
39
40         BigDecimal bd = new BigDecimal(density);
41         System.out.println("density: " +
42 bd.setScale(0,BigDecimal.ROUND_HALF_EVEN).toPlainString());
43
44
45     }
46
47     private static double equation17(double rs){
48         return (rs+2033.3)/2.0282;
49     }
50     private static double equation19(double rs){
51         return (rs+1993.8)/1.9967;
52     }private static double equation20_6(double rs){
53         return (rs+1996.9)/2.0012;
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```
54 }private static double equation22_4(double rs){
55     return (rs+2036.5)/2.0485;
56 }private static double equation22_8(double rs){
57     return (rs+2018.1)/2.0265;
58 }private static double equation23_1(double rs){
59     return (rs+1532.1)/1.544;
60 }private static double equation23_2(double rs){
61     return (rs+1778.6)/1.7886;
62 }private static double equation24(double rs){
63     return (rs+1847.8)/1.8542;
64 }private static double equation24_8(double rs){
65     return (rs+2096.4)/2.1039;
66 }private static double equation25_7(double rs){
67     return (rs+1854.8)/1.8734;
68
69 }
70
71 }
```