```
1 /Users/ginne/anaconda3/bin/python /Users/ginne/PycharmProjects/Playground/机器学习之路/SVM/main.
  ру
 2 数据集中共有 150 组数据
 3 读入数据完毕
       pcost
                                          dres
 4
                  dcost
                             gap
                                    pres
   0: -1.6518e+01 -1.2916e+02
                             4e+02
                                   2e+00
                                          2e-15
   1: -1.1723e+01 -6.5850e+01
                             5e+01
                                   3e-16
                                          2e-15
   2: -1.5596e+01 -2.4842e+01
                             9e+00
                                   2e-15
                                          2e-15
   3: -1.7635e+01 -2.0821e+01
                                   4e-16
                                          2e-15
                             3e+00
   4: -1.8554e+01 -1.9165e+01
                             6e-01
                                   3e-15
                                          2e-15
   5: -1.8749e+01 -1.8840e+01
                             9e-02
                                   3e-15
                                          2e-15
11
   6: -1.8780e+01 -1.8793e+01
                             1e-02
                                   4e-15
                                         3e-15
  7: -1.8785e+01 -1.8786e+01
                             3e-04
                                   4e-15 3e-15
12
   8: -1.8786e+01 -1.8786e+01
                             3e-06
                                   4e-15
                                         3e-15
14 Optimal solution found.
15 支持向量数量 30
16 计算bias是用的第2号向量
17 0.16309400175314903
19 1. 1.]
20 开始画图
21
                  dcost
                                          dres
                                   pres
       pcost
                             gap
22
   0: -9.8163e-01 -9.2174e+01
                             3e+02
                                   1e+00
                                          5e-16
  1: 7.3498e-01 -3.2847e+01
                             3e+01
                                   6e-16
                                         5e-16
   2: -1.4827e+00 -5.2137e+00
24
                             4e+00
                                   2e-16 5e-16
25
   3: -1.8701e+00 -2.8145e+00
                             9e-01
                                   1e-16
                                          4e-16
   4: -2.0259e+00 -2.5265e+00
                             5e-01
                                   3e-16
                                          4e-16
27
   5: -2.1612e+00 -2.2143e+00
                             5e-02
                                   2e-16 4e-16
28
   6: -2.1830e+00 -2.1847e+00
                             2e-03
                                   4e-16 5e-16
29
  7: -2.1839e+00 -2.1840e+00
                             4e-05
                                   2e-16 3e-16
   8: -2.1840e+00 -2.1840e+00
                             6e-07
                                   2e-16
                                         4e-16
31 Optimal solution found.
32 支持向量数量 9
```

```
33 计算bias是用的第7号向量
34 0.16864993495109593
35 [-1. -1. -1. -1. -1. -1. -1. -1. -1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
36
   1. 1.l
37 开始画图
38
       pcost
                   dcost
                                            dres
                              gap
                                     pres
   0: -7.1167e-01 -9.0890e+01
                                     1e+00
                                            5e-16
39
                              3e+02
   1: 8.7277e-01 -3.1769e+01
                              3e+01
                                     4e-16
                                            5e-16
  2: -1.3249e+00 -3.0137e+00
                              2e+00
                                     2e-16
                                           6e-16
41
   3: -1.5636e+00 -2.0946e+00
                              5e-01
                                     5e-16
                                            3e-16
  4: -1.7110e+00 -1.8859e+00
                              2e-01
                                     2e-16
                                            4e-16
43
44 5: -1.7398e+00 -1.8069e+00
                              7e-02
                                     3e-16
                                           4e-16
  6: -1.7573e+00 -1.7706e+00
                              1e-02
                                     3e-16 4e-16
45
   7: -1.7619e+00 -1.7623e+00
                              4e-04
                                     2e-16 4e-16
47 8: -1.7621e+00 -1.7621e+00
                              8e-06
                                     2e-16 4e-16
48 9: -1.7621e+00 -1.7621e+00
                              2e-07
                                     5e-16 4e-16
49 Optimal solution found.
50 支持向量数量 11
51 计算bias是用的第7号向量
52 0.24389926092287606
53 [-1. -1. -1. -1. -1. -1. -1. -1. -1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
54 1. 1.]
55 开始画图
56 [0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 2. 2. 2. 2.
57 2. 2. 2. 2. 2. 2.]
58 f1 micro: 1.0
59
60 Process finished with exit code 0
61
```