

```

1 //醜數/Ugly Numbers](進階)
2 //define IN "P0101IN.txt"
3 #define OUT "P0510OUT.txt"
4 //*****
5 #include <iostream>
6 #include <time.h>
7 using namespace std;
8 void redir(void);
9 //*****
10 /* Work Space*/
11 #include <queue>
12 #include <vector>
13 #include <set>
14 //*****
15 int main(void)
16 {
17     redir(); //redirection
18 //*****
19 /* Work Space*/
20     priority_queue<long long> pq; //愈小的(整數)優先權愈低
21     set<long long> s;
22     int i;
23     long long x, x0;
24     int coef[] = {2, 3, 5}; //2x, 3x, 5x
25     int j;
26
27     pq.push(-1);
28     s.insert(-1);
29     for(i=1;;i++){
30         x = pq.top();
31         pq.pop();
32
33         if(i == 1500){
34             cout << "The 1500'th ugly number is " << -x << endl;
35             break;
36         }
37         for(j=0; j<sizeof(coef)/sizeof(int); j++){
38             x0 = x * coef[j]; //compute 2x, 3x, 5x
39             if(!s.count(x0)){
40                 s.insert(x0);
41                 pq.push(x0);
42             }
43         }
44     }
45 //*****
46     freopen("CON", "r", stdin); //取消重新導向
47     freopen("CON", "w", stdout);
48
49     printf("Time used = %.2f\n", (double)clock()/CLK_TCK); //傳回程式目前為止執行的時間
50
51     system("pause");
52     return 0; //the end...
53 }
54
55 void redir(void)
56 {
57     freopen(IN, "r", stdin);
58     freopen(OUT, "w", stdout);
59 }
60 //*****
61 /* Work Space*/
62 //Input(IN) Sample
63 /*

```

64

65 */