

2. A knowledge – Some kinds of contest sites

Recently, there are many online judges in the world. To be a grandmaster, I solved many problems from many online judges. This time, to explain the post sections, I'd like to explain about some kind of contests.

2-1. Codeforces [<http://codeforces.com/>]

Codeforces is one of the most famous online judges in the world. Currently, there are 5000+ problems.

One of the best ways to use Codeforces is “Problem Rating”. For example, the rating of problem 1146H – Satanic Panic is 2800, which means you should solve **in the contest** if you are rating 2800 or more.

1146H	Satanic Panic	dp, geometry			2800	 x103
1146G	Zoning Restrictions	dp, flows, graphs			2600	 x188
1146F	Leaf Partition	dp, trees			2400	 x270
1146E	Hot Is Cold	bitmasks, data structures, divide and conquer, implementation			2400	 x254
1146D	Frog Jumping	dfs and similar, math, number theory			2100	 x595
1146C	Tree Diameter	bitmasks, graphs			1700	 x1734
1146B	Hate "A"	implementation, strings			1100	 x3354
1146A	Love "A"	implementation, strings			600	 x4500

In addition, there are three division in Codeforces (Div1, Div2, Div3).

After next section, I will use these two representations:

- **Div1A, Div2E, etc:** Div1A means problem A of Div1 contest. Div2E means problem E of Div2 contest. Usually, the first problem is the easiest, and the last problem is the hardest.
- **Difficulty R2800 etc:** “Difficulty R2800” means that problem difficulty which tagged 2800. For example, 1146G – Zoning Restriction is difficulty R2600, 1146A – Love “A” is difficulty R600.

2-2. AtCoder [<https://atcoder.jp/>]

AtCoder is a contest site that **there are many good problems**. It is only “my opinion”, but if you want to be better, you should solve AtCoder.

There are 3 types of contests in AtCoder:

- AtCoder Beginner Contest (ABC): There are 4 problems.
 - The **difficulty** in ABC is generally R500 – R700 – R900 – R1400 in Codeforces difficulty.
- AtCoder Regular Contest (ARC): There are 4 problems. Usually, the first two problems of ARC and the last two problems of ABC are the same.
 - The **difficulty** in ARC is generally R900 – R1400 – R2100 – R2600 in Codeforces difficulty, but it may differ by contest.
- AtCoder Grand Contest (AGC): There are 6 problems.
 - The **difficulty** in AGC is generally R1200 – R1900 – R2200 – R2500 – R3000 – R3300 in Codeforces difficulty,

There is a convenient website – AtCoder problems.

(<https://kenkoooo.com/atcoder#/table/>)

In this website, you can know list of problems and what problem did you solve or not. Solved problems are green and attempted problems are yellow.

AtCoder Beginner Contest

Contest	A	B	C	D
ABC125	A. Biscuit Generator	B. Resale	C. GCD on Blackboard	D. Flipping Signs
ABC124	A. Burrows	B. Great Ocean View	C. Coloring Colorfully	D. Handstand
ABC123	A. Five Antennas	B. Five Dishes	C. Five Transportations	D. Cake 123
ABC122	A. Double Hells	B. AtCoder	C. Get AC	D. We Like AGC
ABC121	A. White Cells	B. Can you solve this?	C. Energy Drink Collector	D. XOR World
ABC120	A. Favorite Sound	B. K-th Common Divisor	C. Unification	D. Decayed Bridges

2-3. TopCoder

TopCoder is also a famous contest site. Single Round Match (SRM) has two divisions:

- **Division 2:** There are 3 problems and difficulties are R600 – R1300 – R2100 in Codeforces difficulty. Each problem is called Div2Easy, Div2Medium, Div2Hard.
- **Division 1:** There are 3 problems and difficulties are R1800 – R2400 – R3000 in Codeforces difficulty. Each problem is called Div1Easy, Div1Medium, Div1Hard.

I also use TopCoder for training, and to become a red-ranked coder. Though the problems are mainly math-heavy, but the problems (especially I like SRM600-699) are good.

2-4. Conclusion of this part

I mainly used 3 online judges: Codeforces, AtCoder and TopCoder. If you know 3 online judges, you are ready to read next section. Training in these contest sites is very important and effective, and I think that it is the fastest way to improve.

From part 3, I will write many essential points. But this is only **my opinion**, and it is OK to not to trust me. There are many people who followed my way and improved much, but there are also far many people who did not follow my way and improved much. Use my method to practice is good, but it is not true that my way is effective for every people.