

NWERC 2023 Test Session

Solutions presentation

November 25, 2023

A: Artistic Souvenir

Problem Author: Wendy Yi

Problem

Given a , find b .

Naive solution

Do something random. $\mathcal{O}(2^{n!})$, too slow!

Solution

Do something smart. $\mathcal{O}(1)$.

Statistics: ... submissions, ... accepted, ... unknown

B: Basic Math

Problem Author: Jeroen Bransen, NWERC 2015

Problem

Given n pairs of numbers, put '+', '-', or '*' between them such that no two results are the same.

Solution

- Make a bipartite graph with n nodes on one side, and a node for every possible answer on the other side.
- Connect each pair of numbers to their 3 possible answers.
- Find a maximum matching, if this is of size n , we have a solution.

Pitfalls

- Result does not fit in an `int`.
- Greedy or brute force approach will not work.

Statistics: ... submissions, ... accepted, ... unknown

C: Cheese Comparison

Problem Author: Ragnar Groot Koerkamp

Problem

Given a , find b .

Naive solution

Do something random. $\mathcal{O}(2^{n!})$, too slow!

Solution

Do something smart. $\mathcal{O}(1)$.

Statistics: ... submissions, ... accepted, ... unknown

Clarifications

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- Compiler flags can be found at 2023.nwerc.eu/systems and in `~/.bashrc`
- The memory limit of your submission is 2 GiB (also see 2023.nwerc.eu/systems).
- The judging is typically case-insensitive (no guarantees though).
- How to flush standard output: please check the documentation of your programming language before tomorrow.
- You *will not* get a time penalty if your submission has a compilation error.
- Other jury advice: 2023.nwerc.eu/jury-advice

Tomorrow:

- you will get three copies of the problem set;
- you are *NOT* allowed to have your bags or any electronic equipment on you (except for medical reasons);
- you *MUST* wear your shirt and badge visibly;

Systems update

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- Printing from CodeBlocks is probably broken.
- The print command is `printf` <file>