CSES Problem Set

General

Introduction	
Create new account	
Statistics	

Introductory Problems

Weird Algorithm	146549 / 153472	–
Missing Number	126439 / 132630	–
Repetitions	110096 / 114643	–
Increasing Array	103433 / 107216	–
Permutations	90835 / 93667	–
Number Spiral	64277 / 70091	–
Bit Strings	61093 / 64513	–
Trailing Zeros	57062 / 60716	–
Two Sets	53293 / 57424	–
Coin Piles	50505 / 55304	–
Two Knights	48998 / 50570	–
Palindrome Reorder	46885 / 49540	✓
Creating Strings	39521 / 40563	–
Apple Division	39494 / 44706	–
Gray Code	31127 / 35048	–
Tower of Hanoi	28783 / 29938	–
Chessboard and Queens	23852 / 24286	–
Digit Queries	16849 / 19690	–
Grid Path Description	9396 / 12237	–
Raab Game I	3294 / 3760	–
Knight Moves Grid	3191 / 3266	–
Mex Grid Construction	3178 / 3399	–

Grid Coloring I	2624 / 2717	–
String Reorder	2580 / 3006	–

Sorting and Searching

Distinct Numbers	71409 / 77335	–
Apartments	52930 / 58938	–
Ferris Wheel	50780 / 54916	–
Sum of Two Values	46639 / 52314	–
Maximum Subarray Sum	45225 / 47270	–
Restaurant Customers	41667 / 45026	–
Concert Tickets	40905 / 47729	–
Stick Lengths	40384 / 42298	–
Movie Festival	39953 / 42354	–
Towers	31452 / 33735	–
Playlist	31080 / 35647	–
Collecting Numbers	31046 / 33290	–
Missing Coin Sum	30259 / 31391	–
Subarray Sums I	27410 / 29295	–
Factory Machines	25894 / 28299	–
Sum of Three Values	24860 / 27594	–
Subarray Sums II	24788 / 29561	–
Traffic Lights	24314 / 27286	–
Subarray Divisibility	22783 / 24887	–
Array Division	21520 / 22671	–
Tasks and Deadlines	21012 / 21475	–
Nearest Smaller Values	20750 / 21465	–
Josephus Problem I	18487 / 20452	–
Room Allocation	18304 / 21066	–
Reading Books	17006 / 18227	–
Sum of Four Values	15503 / 17340	–
Distinct Values Subarrays II	13489 / 14927	–
Collecting Numbers II	12821 / 16482	–
Movie Festival II	11448 / 13855	–
Maximum Subarray Sum II	10586 / 12700	–
Nested Ranges Check	10573 / 12202	–
Josephus Problem II	9941 / 13771	–

Nested Ranges Count	7166 / 8479	–
Distinct Values Subarrays	4917 / 5175	–
Distinct Values Subsequences	3404 / 3807	–

Dynamic Programming

Dice Combinations	74667 / 79044	–
Minimizing Coins	64538 / 69402	–
Coin Combinations I	58945 / 63867	–
Removing Digits	55573 / 56729	–
Grid Paths I	52174 / 53676	–
Coin Combinations II	49812 / 56508	–
Book Shop	46638 / 51403	–
Edit Distance	34554 / 36487	–
Array Description	34301 / 38186	–
Money Sums	34058 / 35394	–
Rectangle Cutting	28709 / 31393	–
Increasing Subsequence	27383 / 30779	–
Two Sets II	26832 / 28932	–
Counting Towers	20775 / 22033	–
Removal Game	19923 / 27205	–
Projects	18869 / 21163	–
Elevator Rides	11958 / 15129	–
Counting Numbers	9488 / 10743	–
Counting Tilings	6969 / 7619	–
Longest Common Subsequence	6765 / 7025	–
Increasing Subsequence II	3593 / 4184	–
Minimal Grid Path	2880 / 5521	–
Mountain Range	1995 / 3878	–

Graph Algorithms

Counting Rooms	51361 / 54000	✓
Building Roads	44828 / 46460	✓
Message Route	38500 / 40063	✓
Building Teams	36358 / 38396	✓
Labyrinth	35478 / 42670	✓

Shortest Routes I	31448 / 34824	✓
Round Trip	28898 / 31533	✓
Shortest Routes II	25653 / 28835	✓
Course Schedule	20911 / 22149	–
Flight Discount	20089 / 23622	✓
Monsters	19647 / 23302	✓
Road Construction	17534 / 18102	–
Game Routes	16482 / 17703	–
Round Trip II	15957 / 17973	–
Road Reparation	15942 / 16625	–
High Score	15457 / 22147	✓
Longest Flight Route	14638 / 18330	–
Cycle Finding	14289 / 17645	–
Flight Routes Check	14272 / 15501	–
Flight Routes	13958 / 15596	–
Investigation	12188 / 13134	–
Planets and Kingdoms	11452 / 11864	–
Planets Queries I	10601 / 12459	–
Coin Collector	7383 / 8222	–
Hamiltonian Flights	7000 / 8010	✓
Planets Cycles	6500 / 7271	–
Mail Delivery	6172 / 6770	✓
Giant Pizza	4669 / 5158	–
Teleporters Path	4650 / 5357	✓
Download Speed	4592 / 6250	–
School Dance	4080 / 4322	–
Planets Queries II	3779 / 4808	–
Police Chase	3682 / 4153	–
De Bruijn Sequence	3213 / 3367	✓
Distinct Routes	2820 / 3732	–
Knight's Tour	2597 / 3174	–

Range Queries

Static Range Sum Queries	35406 / 37004	✓
Dynamic Range Sum Queries	25982 / 27136	–
Static Range Minimum Queries	24980 / 26768	✓

Range Xor Queries	24314 / 24647	–
Dynamic Range Minimum Queries	23549 / 24115	–
Forest Queries	19652 / 20405	–
Range Update Queries	19229 / 20650	–
Hotel Queries	13908 / 14798	–
List Removals	11571 / 12190	–
Salary Queries	8514 / 10833	–
Prefix Sum Queries	7277 / 7907	–
Subarray Sum Queries	7076 / 7698	–
Distinct Values Queries	6476 / 8066	–
Pizzeria Queries	5878 / 6111	–
Range Updates and Sums	5637 / 6733	–
Forest Queries II	4257 / 4585	–
Polynomial Queries	4154 / 4877	–
Range Queries and Copies	2953 / 3172	–
Increasing Array Queries	2497 / 2867	–
Movie Festival Queries	1197 / 1331	–
Subarray Sum Queries II	1135 / 1205	–
Visible Buildings Queries	1085 / 1189	–
Range Interval Queries	852 / 1131	–
Distinct Values Queries II	668 / 786	–
Missing Coin Sum Queries	586 / 779	–

Tree Algorithms

Subordinates	29571 / 31658	–
Tree Diameter	24082 / 25553	–
Tree Distances I	18360 / 19762	–
Tree Matching	16769 / 19600	–
Company Queries I	16702 / 17590	–
Company Queries II	15638 / 16420	–
Tree Distances II	15071 / 15722	–
Distance Queries	14248 / 15317	–
Subtree Queries	10702 / 11433	–
Counting Paths	8900 / 9454	–
Path Queries	8508 / 9021	–
Distinct Colors	8255 / 9137	–

Finding a Centroid	6642 / 6925	–
Path Queries II	3435 / 5169	–
Fixed-Length Paths I	3134 / 4088	–
Fixed-Length Paths II	1457 / 2707	–

Mathematics

Exponentiation	23272 / 24855	–
Counting Divisors	21139 / 23905	–
Exponentiation II	16494 / 19823	–
Common Divisors	13855 / 16139	–
Binomial Coefficients	9762 / 10854	–
Creating Strings II	8220 / 8689	–
Distributing Apples	7903 / 8513	–
Sum of Divisors	7733 / 11667	–
Fibonacci Numbers	6723 / 8470	✓
Christmas Party	6357 / 6842	–
Prime Multiples	5977 / 7020	–
Divisor Analysis	5258 / 7082	–
Josephus Queries	4500 / 5682	–
Nim Game I	4440 / 4609	–
Bracket Sequences I	4359 / 4753	–
Counting Coprime Pairs	3909 / 4591	–
Nim Game II	3509 / 3658	–
Throwing Dice	3488 / 3796	–
Stick Game	3361 / 3440	–
Graph Paths I	3308 / 3554	–
Dice Probability	3001 / 3246	–
Graph Paths II	2767 / 2903	–
Stair Game	2384 / 2595	–
Bracket Sequences II	2257 / 2599	–
Counting Necklaces	2090 / 2266	–
Another Game	1852 / 2000	–
Counting Grids	1694 / 1812	–
Grundy's Game	1630 / 2157	–
Moving Robots	1546 / 1638	–
Next Prime	1308 / 1501	–

Candy Lottery	1289 / 2855	–
Permutation Rounds	705 / 794	–
Permutation Order	613 / 623	–
Sum of Four Squares	462 / 540	–
Triangle Number Sums	397 / 497	–
System of Linear Equations	302 / 325	–
Inversion Probability	293 / 2194	–

String Algorithms

String Matching	11029 / 14821	–
Finding Borders	8070 / 8835	–
Finding Periods	5751 / 6542	–
Word Combinations	5665 / 8274	–
Longest Palindrome	4240 / 5616	–
Minimal Rotation	2789 / 4285	–
Palindrome Queries	1991 / 2326	–
Finding Patterns	1824 / 2620	–
Repeating Substring	1792 / 2100	–
Counting Patterns	1723 / 2154	–
Distinct Substrings	1649 / 1977	–
Required Substring	1595 / 2463	–
String Functions	1567 / 1642	–
Pattern Positions	1445 / 1772	–
Substring Order I	1122 / 1260	–
Substring Distribution	1041 / 1133	–
Distinct Subsequences	1033 / 1103	–
Substring Order II	740 / 964	–
String Transform	501 / 612	–
All Palindromes	448 / 511	–
Inverse Suffix Array	152 / 178	–

Geometry

Point Location Test	7022 / 7858	–
Polygon Area	4870 / 5167	–
Line Segment Intersection	4186 / 5286	–

Convex Hull	3200 / 3865	–
Point in Polygon	2672 / 3388	–
Polygon Lattice Points	2257 / 2338	–
Minimum Euclidean Distance	1957 / 2720	–
Intersection Points	1887 / 2030	–
Area of Rectangles	1074 / 1202	–
Maximum Manhattan Distances	430 / 441	–
All Manhattan Distances	426 / 472	–
Robot Path	296 / 513	–
Lines and Queries I	253 / 261	–
Line Segments Trace I	231 / 238	–
Lines and Queries II	216 / 224	–
Line Segments Trace II	186 / 197	–

Advanced Techniques

Meet in the Middle	6450 / 9039	–
Hamming Distance	3153 / 3434	–
Corner Subgrid Count	2188 / 2458	–
Reachable Nodes	2184 / 2350	–
New Roads Queries	2083 / 2544	–
Necessary Roads	1868 / 1912	–
Necessary Cities	1733 / 1819	–
Reachability Queries	1456 / 1725	–
Cut and Paste	1444 / 1608	–
Subarray Squares	1305 / 1556	–
Reversals and Sums	1275 / 1377	–
Substring Reversals	1267 / 1384	–
Monster Game I	1106 / 1234	–
Monster Game II	982 / 1057	–
Apples and Bananas	978 / 1064	–
Dynamic Connectivity	934 / 1059	–
Knuth Division	885 / 1004	–
Task Assignment	844 / 897	–
One Bit Positions	791 / 868	–
Eulerian Subgraphs	762 / 803	–
Signal Processing	739 / 796	–

Houses and Schools	729 / 873	–
Parcel Delivery	724 / 803	–
Distinct Routes II	549 / 632	–
Corner Subgrid Check	227 / 369	–

Sliding Window Problems

Sliding Window Median	13123 / 15026	–
Sliding Window Cost	8718 / 10068	–
Sliding Window Sum	3363 / 3515	–
Sliding Window Minimum	2619 / 2984	–
Sliding Window Xor	2518 / 2549	–
Sliding Window Distinct Values	2102 / 2143	–
Sliding Window Mode	1467 / 1546	–
Sliding Window Mex	1303 / 1374	–
Sliding Window Or	1065 / 1970	–
Sliding Window Inversions	734 / 786	–
Sliding Window Advertisement	143 / 227	–

Interactive Problems

Hidden Integer	1422 / 1468	–
Hidden Permutation	609 / 731	–
Permuted Binary Strings	349 / 359	–
Colored Chairs	301 / 317	–
K-th Highest Score	263 / 320	–
Inversion Sorting	177 / 189	–

Bitwise Operations

Counting Bits	4375 / 5634	–
Maximum Xor Subarray	2664 / 2997	–
SOS Bit Problem	1886 / 2012	–
Xor Pyramid Peak	1820 / 2234	–
Maximum Xor Subset	656 / 709	–
Number of Subset Xors	566 / 577	–
K Subset Xors	274 / 324	–
And Subset Count	267 / 271	–

Xor Pyramid Diagonal	216 / 245	–
All Subarray Xors	186 / 292	–
Xor Pyramid Row	175 / 206	–

Construction Problems

Inverse Inversions	1348 / 1437	–
Chess Tournament	1094 / 1265	–
Monotone Subsequences	815 / 954	–
Third Permutation	262 / 304	–
Permutation Prime Sums	257 / 278	–
Filling Trominos	226 / 389	–
Grid Path Construction	114 / 415	–
Distinct Sums Grid	73 / 126	–

Advanced Graph Problems

Graph Girth	3142 / 3600	–
Acyclic Graph Edges	2080 / 2212	–
Course Schedule II	1726 / 2490	–
Strongly Connected Edges	1445 / 1604	–
Prüfer Code	1411 / 1525	–
Even Outdegree Edges	1235 / 1456	–
Tree Traversals	1109 / 1223	–
Tree Isomorphism I	1013 / 1217	–
Network Breakdown	937 / 996	–
Network Renovation	884 / 1181	–
Tree Isomorphism II	820 / 963	–
Forbidden Cities	755 / 995	–
Visiting Cities	637 / 844	–
Nearest Shops	487 / 634	–
Flight Route Requests	452 / 550	–
Creating Offices	387 / 501	–
Critical Cities	384 / 591	–
MST Edge Check	364 / 390	–
New Flight Routes	291 / 779	–
Transfer Speeds Sum	288 / 295	–

MST Edge Cost	259 / 270	–
Fixed Length Walk Queries	255 / 277	–
Tree Coin Collecting I	215 / 238	–
Bus Companies	179 / 183	–
MST Edge Set Check	158 / 178	–
Graph Coloring	151 / 175	–
Tree Coin Collecting II	113 / 133	–
Split into Two Paths	62 / 111	–

Counting Problems

Empty String	1497 / 1827	–
Permutation Inversions	957 / 1054	–
Counting Permutations	831 / 941	–
Grid Paths II	703 / 877	–
Counting Sequences	612 / 658	–
Filled Subgrid Count I	361 / 400	–
Counting Bishops	361 / 404	–
Functional Graph Distribution	224 / 279	–
Counting Reorders	219 / 322	–
Grid Completion	209 / 264	–
Filled Subgrid Count II	186 / 223	–
All Letter Subgrid Count I	96 / 155	–
All Letter Subgrid Count II	85 / 100	–
Collecting Numbers Distribution	80 / 83	–
Tournament Graph Distribution	78 / 81	–
Raab Game II	70 / 82	–
Border Subgrid Count II	67 / 77	–
Border Subgrid Count I	62 / 108	–

Additional Problems I

Multiplication Table	6159 / 6892	–
Advertisement	4029 / 4266	–
Shortest Subsequence	2841 / 3771	–
Bit Inversions	2174 / 2483	–
Maximum Building I	1948 / 2033	–

Swap Game	1931 / 2454	–
Cyclic Array	1092 / 1245	–
Special Substrings	919 / 1007	–
Sorting Methods	727 / 779	–
Writing Numbers	699 / 756	–
Pyramid Array	667 / 808	–
Stack Weights	548 / 651	–
List of Sums	443 / 578	–
Distinct Values Sum	440 / 453	–
Distinct Values Splits	308 / 327	–
Beautiful Permutation II	249 / 366	–
Bubble Sort Rounds I	231 / 267	–
Letter Pair Move Game	184 / 264	–
Counting LCM Arrays	173 / 185	–
Subarray Sum Constraints	172 / 185	–
Permutation Subsequence	147 / 151	–
Square Subsets	139 / 157	–
Subsets with Fixed Average	135 / 146	–
Two Array Average	132 / 149	–
Water Containers Queries	130 / 136	–
Bubble Sort Rounds II	129 / 151	–
Nearest Campsites I	109 / 126	–
Nearest Campsites II	109 / 118	–
Maximum Average Subarrays	104 / 115	–
Water Containers Moves	101 / 111	–

Additional Problems II

Stick Divisions	3578 / 4202	–
Coding Company	1366 / 1806	–
School Excursion	1278 / 1358	–
Book Shop II	1094 / 1259	–
Coin Grid	799 / 939	–
Mex Grid Queries	794 / 933	–
Increasing Array II	740 / 855	–
Food Division	497 / 587	–
Grid Puzzle I	493 / 540	–

Programmers and Artists	455 / 641	–
Grid Puzzle II	453 / 499	–
Maximum Building II	417 / 512	–
Swap Round Sorting	393 / 484	–
Bit Substrings	356 / 435	–
Reversal Sorting	330 / 402	–
Coin Arrangement	306 / 413	–
GCD Subsets	281 / 288	–
Binary Subsequences	273 / 401	–
Removing Digits II	199 / 447	–
Two Stacks Sorting	159 / 503	–
Bouncing Ball Steps	154 / 168	–
K Subset Sums I	114 / 153	–
Grid Coloring II	89 / 111	–
Knight Moves Queries	84 / 100	–
Replace with Difference	84 / 101	–
Same Sum Subsets	72 / 132	–
Minimum Cost Pairs	65 / 89	–
Bouncing Ball Cycle	61 / 82	–
K Subset Sums II	57 / 81	–
Stick Difference	24 / 142	–