

# *Optimization/simulation-based risk mitigation in resilient green communication networks*

## Code for optimization procedures

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To reproduce the steps of the algorithm presented in the paper, save attached files to a common directory and provide required tools.

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## SOFTWARE REQUIREMENTS

- CPLEX (including OPL Interpreter): <http://www-01.ibm.com/software/commerce/optimization/cplex-optimizer/>

## DL-SL-POLAND.DAT

This CPLEX file presents data necessary to find the optimal optical flows if energy profiles in links are concave. The recovery option used by all the demands is either based on dedicated link protection 1:1 DL or shared backup link protection SL. The energy profiles are approximated with linear segments. The data is related to the Poland network

```

1 // *****/
2 // OPL 12.6.0.0 Model
3 // Author: Piotr Cholda, AGH University of Science and Technology
4 // piotr.cholda@agh.edu.pl
5 // Creation Date: 2 June 2015
6 // *****/
7
8 Nodes = {Gdansk,
9         Bydgoszcz,
10        Kolobrzeg,
11        Katowice,
12        Krakow,
13        Bialystok,
14        Lodz,
15        Poznan,
16        Rzeszow,
17        Szczecin,
18        Warsaw,
19        Wroclaw};
20
21 Arcs = {<Gdansk,Warsaw>, <Gdansk,Kolobrzeg>,
22        <Bydgoszcz,Kolobrzeg>, <Bydgoszcz,Poznan>,
23        <Bydgoszcz,Warsaw>, <Kolobrzeg,Szczecin>,
24        <Katowice,Krakow>, <Katowice,Lodz>,
25        <Katowice,Wroclaw>, <Krakow,Rzeszow>,
26        <Krakow,Warsaw>, <Bialystok,Rzeszow>,
27        <Bialystok,Warsaw>, <Lodz,Warsaw>,
28        <Lodz,Wroclaw>, <Poznan,Szczecin>,
29        <Poznan,Wroclaw>, <Gdansk,Bialystok>};
30
31 Demands = {<Gdansk,Bydgoszcz>, <Gdansk,Kolobrzeg>,
32            <Gdansk,Katowice>, <Gdansk,Krakow>,
33            <Gdansk,Bialystok>, <Gdansk,Lodz>,
34            <Gdansk,Poznan>, <Gdansk,Rzeszow>,
35            <Gdansk,Szczecin>, <Gdansk,Warsaw>,
36            <Gdansk,Wroclaw>, <Bydgoszcz,Kolobrzeg>,
37            <Bydgoszcz,Katowice>, <Bydgoszcz,Krakow>,
38            <Bydgoszcz,Bialystok>, <Bydgoszcz,Lodz>,
39            <Bydgoszcz,Poznan>, <Bydgoszcz,Rzeszow>,
40            <Bydgoszcz,Szczecin>, <Bydgoszcz,Warsaw>,
41            <Bydgoszcz,Wroclaw>, <Kolobrzeg,Katowice>,
42            <Kolobrzeg,Krakow>, <Kolobrzeg,Bialystok>,
43            <Kolobrzeg,Lodz>, <Kolobrzeg,Poznan>,
44            <Kolobrzeg,Rzeszow>, <Kolobrzeg,Szczecin>,
45            <Kolobrzeg,Warsaw>, <Kolobrzeg,Wroclaw>,
46            <Katowice,Krakow>, <Katowice,Bialystok>,
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53            <Krakow,Wroclaw>, <Bialystok,Lodz>,
54            <Bialystok,Poznan>, <Bialystok,Rzeszow>,
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56            <Bialystok,Wroclaw>, <Lodz,Poznan>,
57            <Lodz,Rzeszow>, <Lodz,Szczecin>,
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59            <Poznan,Rzeszow>, <Poznan,Szczecin>,
60            <Poznan,Warsaw>, <Poznan,Wroclaw>,
61            <Rzeszow,Szczecin>, <Rzeszow,Warsaw>,
62            <Rzeszow,Wroclaw>, <Szczecin,Warsaw>,
63            <Szczecin,Wroclaw>, <Warsaw,Wroclaw>};
64

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  ↵ 131 159 164 128 195 130 105 173 157 194 125 110 132 159 109 126 100 124 106 136 144 ↵
  ↵ 168 119 127 105 147 140 198 104 113 169 187 196 193 151 106 125 194 194 123 181 193 181↵
  ↵ 195 141];

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66 Path = 10;

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68
69 delta = [[[ 0 1 0 0 1 0 1 1 0 1]][ 0 1 0 1 1 0 0 1 1 1]][ 1 1 0 0 0 1 ↵
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↖ 0 0 0 0 0 1 ]][ 0 0 0 0 0 0 0 0 0 ]][ 0 0 0 0 0 0 0 0 1 1 ]][ 0  
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105  ↵0 ] [ 0 0 0 0 0 0 0 1 1 0 0 ] [ 0 0 0 0 0 0 0 0 0 0 ] [ 0 0 0 0 0 1 1 ↵
    ↵ 0 0 1 ] [ 0 0 0 0 0 1 0 0 1 0 ] [ 0 0 1 0 ]
[[ 0 0 0 0 0 1 1 1 1 1 ] [ 0 0 0 1 0 0 1 1 1 1 ] [ 0 0 0 0 1 1 1 1 1 1 ↵
    ↵1 ] [ 0 1 0 1 1 0 1 1 1 1 ] [ 0 0 1 0 1 1 1 0 0 1 ] [ 0 0 0 1 1 1 1 1 ↵
    ↵ 1 1 1 ] [ 0 0 0 1 0 0 1 0 1 1 ] [ 0 0 1 0 0 1 1 1 1 0 ] [ 0 0 1 1 1 ↵
    ↵ 0 0 1 1 1 1 ] [ 0 0 0 0 0 0 0 1 1 0 ] [ 0 0 0 0 1 0 1 1 1 1 ] [ 0 ↵
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    ↵0 ] [ 0 0 1 0 1 1 1 1 0 1 ] [ 0 0 0 0 1 1 1 1 1 1 ] [ 0 0 0 0 0 0 0 ↵
    ↵ 0 0 0 ] [ 0 0 0 0 0 0 0 1 1 0 ]
106  [[ 1 0 1 0 1 0 0 0 0 0 ] [ 0 1 0 0 1 1 0 0 0 1 ] [ 0 0 1 1 0 0 1 0 0 ↵
    ↵0 ] [ 0 0 0 0 0 1 0 0 0 0 ] [ 0 1 0 0 0 0 0 1 1 0 ] [ 0 0 1 0 0 0 0 0 ↵
    ↵ 0 0 1 ] [ 0 0 0 0 1 0 0 1 0 0 ] [ 0 0 0 0 1 0 0 0 0 1 ] [ 0 0 0 0 ↵
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    ↵1 0 1 0 1 1 0 1 0 ] [ 1 0 1 0 1 0 0 1 1 0 ] [ 0 0 0 0 0 0 0 1 0 ↵
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107 ];

108 Number\_seg = 1989;

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    ↵ 4.473031e-02  4.304053e-02  4.152891e-02  4.016619e-02  3.892942e-02  3.780031e-02 ↵
    ↵3.676409e-02  3.580869e-02  3.492411e-02  3.410202e-02  3.333539e-02  3.261825e-02 ↵
    ↵3.194549e-02  3.131272e-02  3.071612e-02  3.015238e-02  2.961858e-02  2.911217e-02 ↵
    ↵2.863088e-02  2.817270e-02  2.773583e-02  2.731868e-02  2.691980e-02  2.653790e-02 ↵
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    ↵2.270413e-02  2.247362e-02  2.224998e-02  2.203289e-02  2.182204e-02  2.161712e-02 ↵
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    ↵1.007075e-02  1.005038e-02  1.003014e-02  1.001002e-02  9.990020e-03  9.970139e-03 ↵
    ↵9.950377e-03  9.930731e-03  9.911202e-03  9.891787e-03  9.872486e-03  9.853297e-03 ↵
    ↵9.834220e-03  9.815254e-03  9.796396e-03  9.777647e-03  9.759005e-03  9.740469e-03 ↵
    ↵9.722039e-03  9.703713e-03  9.685490e-03  9.667369e-03  9.649350e-03  9.631431e-03 ↵
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    ↵9.407212e-03  9.390606e-03  9.374088e-03  9.357657e-03  9.341312e-03  9.325052e-03 ↵
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↳8.859627e-03	8.845751e-03	8.831940e-03	8.818194e-03	8.804512e-03	8.790893e-03	↵
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↳8.619411e-03	8.606632e-03	8.593910e-03	8.581244e-03	8.568633e-03	8.556079e-03	↵
↳8.543579e-03	8.531134e-03	8.518743e-03	8.506406e-03	8.494122e-03	8.481891e-03	↵
↳8.469714e-03	8.457588e-03	8.445514e-03	8.433492e-03	8.421521e-03	8.409601e-03	↵
↳8.397732e-03	8.385912e-03	8.374142e-03	8.362422e-03	8.350751e-03	8.339128e-03	↵
↳8.327554e-03	8.316028e-03	8.304550e-03	8.293119e-03	8.281735e-03	8.270398e-03	↵
↳8.259107e-03	8.247863e-03	8.236664e-03	8.225511e-03	8.214403e-03	8.203340e-03	↵
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↳6.180380e-03	6.175664e-03	6.170959e-03	6.166265e-03	6.161581e-03	6.156908e-03	↵
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↳5.771579e-03	5.767738e-03	5.763904e-03	5.760078e-03	5.756260e-03	5.752449e-03	↵
↳5.748646e-03	5.744850e-03	5.741062e-03	5.737281e-03	5.733508e-03	5.729742e-03	↵
↳5.725984e-03	5.722233e-03	5.718489e-03	5.714753e-03	5.711024e-03	5.707302e-03	↵
↳5.703587e-03	5.699880e-03	5.696180e-03	5.692487e-03	5.688802e-03	5.685123e-03	↵
↳5.681452e-03	5.677787e-03	5.674130e-03	5.670480e-03	5.666837e-03	5.663201e-03	↵
↳5.659572e-03	5.655950e-03	5.652334e-03	5.648726e-03	5.645125e-03	5.641530e-03	↵
↳5.637943e-03	5.634362e-03	5.630788e-03	5.627221e-03	5.623660e-03	5.620107e-03	↵
↳5.616560e-03	5.613020e-03	5.609486e-03	5.605959e-03	5.602439e-03	5.598925e-03	↵
↳5.595418e-03	5.591918e-03	5.588424e-03	5.584937e-03	5.581456e-03	5.577982e-03	↵
↳5.574514e-03	5.571053e-03	5.567598e-03	5.564149e-03	5.560707e-03	5.557271e-03	↵
↳5.553842e-03	5.550419e-03	5.547002e-03	5.543592e-03	5.540188e-03	5.536790e-03	↵
↳5.533398e-03	5.530013e-03	5.526634e-03	5.523261e-03	5.519894e-03	5.516533e-03	↵
↳5.513179e-03	5.509830e-03	5.506488e-03	5.503152e-03	5.499822e-03	5.496497e-03	↵
↳5.493179e-03	5.489867e-03	5.486561e-03	5.483261e-03	5.479966e-03	5.476678e-03	↵
↳5.473396e-03	5.470119e-03	5.466849e-03	5.463584e-03	5.460325e-03	5.457072e-03	↵
↳5.453825e-03	5.450583e-03	5.447347e-03	5.444117e-03	5.440893e-03	5.437675e-03	↵
↳5.434462e-03	5.431255e-03	5.428053e-03	5.424857e-03	5.421667e-03	5.418483e-03	↵
↳5.415304e-03	5.412131e-03	5.408963e-03	5.405801e-03	5.402644e-03	5.399493e-03	↵
↳5.396347e-03	5.393207e-03	5.390072e-03	5.386943e-03	5.383819e-03	5.380701e-03	↵
↳5.377588e-03	5.374480e-03	5.371378e-03	5.368281e-03	5.365190e-03	5.362104e-03	↵
↳5.359023e-03	5.355948e-03	5.352877e-03	5.349813e-03	5.346753e-03	5.343699e-03	↵
↳5.340649e-03	5.337605e-03	5.334567e-03	5.331533e-03	5.328505e-03	5.325481e-03	↵
↳5.322463e-03	5.319450e-03	5.316442e-03	5.313439e-03	5.310442e-03	5.307449e-03	↵
↳5.304462e-03	5.301479e-03	5.298501e-03	5.295529e-03	5.292561e-03	5.289599e-03	↵
↳5.286641e-03	5.283689e-03	5.280718e-03	5.277798e-03	5.274861e-03	5.271928e-03	↵
↳5.269000e-03	5.266076e-03	5.263158e-03	5.260245e-03	5.257336e-03	5.254432e-03	↵
↳5.251533e-03	5.248639e-03	5.245750e-03	5.242865e-03	5.239985e-03	5.237110e-03	↵
↳5.234239e-03	5.231374e-03	5.228513e-03	5.225656e-03	5.222805e-03	5.219958e-03	↵
↳5.217115e-03	5.214278e-03	5.211445e-03	5.208616e-03	5.205792e-03	5.202973e-03	↵
↳5.200158e-03	5.197348e-03	5.194543e-03	5.191742e-03	5.188945e-03	5.186153e-03	↵
↳5.183365e-03	5.180582e-03	5.177804e-03	5.175030e-03	5.172260e-03	5.169495e-03	↵
↳5.166734e-03	5.163978e-03	5.161226e-03	5.158479e-03	5.155735e-03	5.152997e-03	↵
↳5.150262e-03	5.147532e-03	5.144806e-03	5.142085e-03	5.139368e-03	5.136655e-03	↵
↳5.133947e-03	5.131242e-03	5.128542e-03	5.125847e-03	5.123155e-03	5.120468e-03	↵
↳5.117785e-03	5.115106e-03	5.112432e-03	5.109761e-03	5.107095e-03	5.104433e-03	↵
↳5.101775e-03	5.099122e-03	5.096472e-03	5.093827e-03	5.091185e-03	5.088548e-03	↵
↳5.085915e-03	5.083286e-03	5.080661e-03	5.078040e-03	5.075423e-03	5.072810e-03	↵
↳5.070201e-03	5.067597e-03	5.064996e-03	5.062399e-03	5.059806e-03	5.057218e-03	↵
↳5.054633e-03	5.052052e-03	5.049475e-03	5.046902e-03	5.044333e-03	5.041768e-03	↵
↳5.039207e-03	5.036649e-03	5.034096e-03	5.031546e-03	5.029001e-03	5.026459e-03	↵
↳5.023921e-03	5.021387e-03	5.018856e-03	5.016330e-03	5.013807e-03	5.011288e-03	↵
↳5.008773e-03	5.006262e-03	5.003754e-03	5.001251e-03	4.998751e-03	4.996254e-03	↵
↳4.993762e-03	4.991273e-03	4.988788e-03	4.986307e-03	4.983829e-03	4.981355e-03	↵
↳4.978885e-03	4.976418e-03	4.973955e-03	4.971496e-03	4.969040e-03	4.966588e-03	↵
↳4.964140e-03	4.961695e-03	4.959254e-03	4.956816e-03	4.954382e-03	4.951952e-03	↵
↳4.949525e-03	4.947102e-03	4.944682e-03	4.942266e-03	4.939853e-03	4.937444e-03	↵
↳4.935038e-03	4.932636e-03	4.930238e-03	4.927843e-03	4.925451e-03	4.923063e-03	↵
↳4.920678e-03	4.918297e-03	4.915920e-03	4.913545e-03	4.911174e-03	4.908807e-03	↵
↳4.906443e-03	4.904083e-03	4.901725e-03	4.899372e-03	4.897021e-03	4.894674e-03	↵
↳4.892331e-03	4.889990e-03	4.887653e-03	4.885320e-03	4.882990e-03	4.880663e-03	↵
↳4.878339e-03	4.876019e-03	4.873702e-03	4.871388e-03	4.869078e-03	4.866771e-03	↵
↳4.864467e-03	4.862167e-03	4.859869e-03	4.857575e-03	4.855284e-03	4.852997e-03	↵
↳4.850713e-03	4.848432e-03	4.846154e-03	4.843879e-03	4.841608e-03	4.839339e-03	↵
↳4.837074e-03	4.834812e-03	4.832554e-03	4.830298e-03	4.828046e-03	4.825796e-03	↵
↳4.823550e-03	4.821307e-03	4.819067e-03	4.816831e-03	4.814597e-03	4.812366e-03	↵
↳4.810139e-03	4.807915e-03	4.805693e-03	4.803475e-03	4.801260e-03	4.799048e-03	↵
↳4.796839e-03	4.794633e-03	4.792430e-03	4.790230e-03	4.788034e-03	4.785840e-03	↵
↳4.783649e-03	4.781461e-03	4.779276e-03	4.777094e-03	4.774916e-03	4.772740e-03	↵
↳4.770567e-03	4.768397e-03	4.766230e-03	4.764066e-03	4.761905e-03	4.759747e-03	↵
↳4.757592e-03	4.755439e-03	4.753290e-03	4.751144e-03	4.749000e-03	4.746859e-03	↵
↳4.744722e-03	4.742587e-03	4.740455e-03	4.738326e-03	4.736199e-03	4.734076e-03	↵
↳4.731955e-03	4.729838e-03	4.727723e-03	4.725611e-03	4.723502e-03	4.721395e-03	↵

↳4.719292e-03	4.717191e-03	4.715093e-03	4.712998e-03	4.710906e-03	4.708816e-03	↵
↳4.706729e-03	4.704645e-03	4.702564e-03	4.700486e-03	4.698410e-03	4.696337e-03	↵
↳4.694267e-03	4.692199e-03	4.690134e-03	4.688072e-03	4.686013e-03	4.683956e-03	↵
↳4.681903e-03	4.679851e-03	4.677803e-03	4.675757e-03	4.673714e-03	4.671673e-03	↵
↳4.669636e-03	4.667600e-03	4.665568e-03	4.663538e-03	4.661511e-03	4.659486e-03	↵
↳4.657464e-03	4.655445e-03	4.653429e-03	4.651414e-03	4.649403e-03	4.647394e-03	↵
↳4.645388e-03	4.643384e-03	4.641383e-03	4.639385e-03	4.637389e-03	4.635396e-03	↵
↳4.633405e-03	4.631417e-03	4.629431e-03	4.627448e-03	4.625468e-03	4.623490e-03	↵
↳4.621514e-03	4.619541e-03	4.617571e-03	4.615603e-03	4.613638e-03	4.611675e-03	↵
↳4.609715e-03	4.607757e-03	4.605802e-03	4.603849e-03	4.601898e-03	4.599950e-03	↵
↳4.598005e-03	4.596062e-03	4.594122e-03	4.592184e-03	4.590248e-03	4.588315e-03	↵
↳4.586384e-03	4.584456e-03	4.582530e-03	4.580607e-03	4.578686e-03	4.576767e-03	↵
↳4.574851e-03	4.572937e-03	4.571026e-03	4.569117e-03	4.567210e-03	4.565306e-03	↵
↳4.563404e-03	4.561505e-03	4.559608e-03	4.557713e-03	4.555821e-03	4.553931e-03	↵
↳4.552043e-03	4.550158e-03	4.548275e-03	4.546394e-03	4.544516e-03	4.542640e-03	↵
↳4.540766e-03	4.538895e-03	4.537026e-03	4.535159e-03	4.533295e-03	4.531433e-03	↵
↳4.529573e-03	4.527715e-03	4.525860e-03	4.524007e-03	4.522156e-03	4.520308e-03	↵
↳4.518462e-03	4.516618e-03	4.514776e-03	4.512937e-03	4.511100e-03	4.509265e-03	↵
↳4.507432e-03	4.505602e-03	4.503774e-03	4.501948e-03	4.500124e-03	4.498302e-03	↵
↳4.496483e-03	4.494666e-03	4.492851e-03	4.491038e-03	4.489228e-03	4.487419e-03	↵
↳4.485613e-03	4.483809e-03	4.482007e-03	4.480208e-03	4.478410e-03	4.476615e-03	↵
↳4.474822e-03	4.473031e-03	4.471242e-03	4.469455e-03	4.467671e-03	4.465888e-03	↵
↳4.464108e-03	4.462330e-03	4.460554e-03	4.458780e-03	4.457008e-03	4.455238e-03	↵
↳4.453471e-03	4.451705e-03	4.449942e-03	4.448180e-03	4.446421e-03	4.444664e-03	↵
↳4.442909e-03	4.441156e-03	4.439405e-03	4.437656e-03	4.435910e-03	4.434165e-03	↵
↳4.432422e-03	4.430682e-03	4.428943e-03	4.427207e-03	4.425472e-03	4.423740e-03	↵
↳4.422009e-03	4.420281e-03	4.418555e-03	4.416830e-03	4.415108e-03	4.413388e-03	↵
↳4.411669e-03	4.409953e-03	4.408239e-03	4.406527e-03	4.404816e-03	4.403108e-03	↵
↳4.401402e-03	4.399697e-03	4.397995e-03	4.396295e-03	4.394596e-03	4.392900e-03	↵
↳4.391205e-03	4.389513e-03	4.387822e-03	4.386134e-03	4.384447e-03	4.382762e-03	↵
↳4.381080e-03	4.379399e-03	4.377720e-03	4.376043e-03	4.374368e-03	4.372695e-03	↵
↳4.371024e-03	4.369354e-03	4.367687e-03	4.366021e-03	4.364358e-03	4.362696e-03	↵
↳4.361036e-03	4.359379e-03	4.357723e-03	4.356068e-03	4.354416e-03	4.352766e-03	↵
↳4.351117e-03	4.349471e-03	4.347826e-03	4.346183e-03	4.344542e-03	4.342903e-03	↵
↳4.341266e-03	4.339630e-03	4.337997e-03	4.336365e-03	4.334735e-03	4.333107e-03	↵
↳4.331481e-03	4.329856e-03	4.328234e-03	4.326613e-03	4.324994e-03	4.323377e-03	↵
↳4.321762e-03	4.320148e-03	4.318537e-03	4.316927e-03	4.315319e-03	4.313712e-03	↵
↳4.312108e-03	4.310505e-03	4.308904e-03	4.307305e-03	4.305708e-03	4.304112e-03	↵
↳4.302518e-03	4.300926e-03	4.299336e-03	4.297747e-03	4.296161e-03	4.294576e-03	↵
↳4.292992e-03	4.291411e-03	4.289831e-03	4.288253e-03	4.286677e-03	4.285102e-03	↵
↳4.283529e-03	4.281958e-03	4.280389e-03	4.278821e-03	4.277256e-03	4.275691e-03	↵
↳4.274129e-03	4.272568e-03	4.271009e-03	4.269452e-03	4.267896e-03	4.266342e-03	↵
↳4.264790e-03	4.263239e-03	4.261690e-03	4.260143e-03	4.258598e-03	4.257054e-03	↵
↳4.255512e-03	4.253971e-03	4.252433e-03	4.250896e-03	4.249360e-03	4.247826e-03	↵
↳4.246294e-03	4.244764e-03	4.243235e-03	4.241708e-03	4.240182e-03	4.238658e-03	↵
↳4.237136e-03	4.235615e-03	4.234097e-03	4.232579e-03	4.231063e-03	4.229549e-03	↵
↳4.228037e-03	4.226526e-03	4.225017e-03	4.223509e-03	4.222003e-03	4.220499e-03	↵
↳4.218996e-03	4.217495e-03	4.215996e-03	4.214498e-03	4.213001e-03	4.211506e-03	↵
↳4.210013e-03	4.208522e-03	4.207032e-03	4.205543e-03	4.204056e-03	4.202571e-03	↵
↳4.201087e-03	4.199605e-03	4.198125e-03	4.196646e-03	4.195168e-03	4.193692e-03	↵
↳4.192218e-03	4.190745e-03	4.189274e-03	4.187805e-03	4.186336e-03	4.184870e-03	↵
↳4.183405e-03	4.181941e-03	4.180479e-03	4.179019e-03	4.177560e-03	4.176103e-03	↵
↳4.174647e-03	4.173192e-03	4.171740e-03	4.170288e-03	4.168839e-03	4.167390e-03	↵
↳4.165944e-03	4.164498e-03	4.163055e-03	4.161612e-03	4.160172e-03	4.158732e-03	↵
↳4.157295e-03	4.155858e-03	4.154423e-03	4.152990e-03	4.151558e-03	4.150128e-03	↵
↳4.148699e-03	4.147272e-03	4.145846e-03	4.144421e-03	4.142998e-03	4.141577e-03	↵
↳4.140157e-03	4.138738e-03	4.137321e-03	4.135905e-03	4.134491e-03	4.133078e-03	↵
↳4.131667e-03	4.130257e-03	4.128849e-03	4.127442e-03	4.126036e-03	4.124632e-03	↵
↳4.123229e-03	4.121828e-03	4.120428e-03	4.119030e-03	4.117633e-03	4.116237e-03	↵
↳4.114843e-03	4.113450e-03	4.112059e-03	4.110669e-03	4.109281e-03	4.107894e-03	↵
↳4.106508e-03	4.105124e-03	4.103741e-03	4.102359e-03	4.100979e-03	4.099600e-03	↵
↳4.098223e-03	4.096847e-03	4.095473e-03	4.094099e-03	4.092728e-03	4.091357e-03	↵
↳4.089988e-03	4.088620e-03	4.087254e-03	4.085889e-03	4.084526e-03	4.083164e-03	↵
↳4.081803e-03	4.080443e-03	4.079085e-03	4.077728e-03	4.076373e-03	4.075019e-03	↵
↳4.073666e-03	4.072315e-03	4.070965e-03	4.069616e-03	4.068269e-03	4.066923e-03	↵
↳4.065578e-03	4.064235e-03	4.062893e-03	4.061552e-03	4.060213e-03	4.058875e-03	↵
↳4.057538e-03	4.056203e-03	4.054869e-03	4.053536e-03	4.052205e-03	4.050874e-03	↵
↳4.049546e-03	4.048218e-03	4.046892e-03	4.045567e-03	4.044243e-03	4.042921e-03	↵
↳4.041600e-03	4.040280e-03	4.038962e-03	4.037645e-03	4.036329e-03	4.035014e-03	↵

↳4.033701e-03	4.032389e-03	4.031079e-03	4.029769e-03	4.028461e-03	4.027154e-03	↵
↳4.025848e-03	4.024544e-03	4.023241e-03	4.021939e-03	4.020639e-03	4.019339e-03	↵
↳4.018041e-03	4.016745e-03	4.015449e-03	4.014155e-03	4.012862e-03	4.011570e-03	↵
↳4.010280e-03	4.008990e-03	4.007702e-03	4.006415e-03	4.005130e-03	4.003846e-03	↵
↳4.002563e-03	4.001281e-03	4.000000e-03	3.998721e-03	3.997443e-03	3.996166e-03	↵
↳3.994890e-03	3.993615e-03	3.992342e-03	3.991070e-03	3.989799e-03	3.988530e-03	↵
↳3.987261e-03	3.985994e-03	3.984728e-03	3.983463e-03	3.982200e-03	3.980937e-03	↵
↳3.979676e-03	3.978416e-03	3.977157e-03	3.975900e-03	3.974643e-03	3.973388e-03	↵
↳3.972134e-03	3.970881e-03	3.969629e-03	3.968379e-03	3.967130e-03	3.965882e-03	↵
↳3.964635e-03	3.963389e-03	3.962144e-03	3.960901e-03	3.959659e-03	3.958418e-03	↵
↳3.957178e-03	3.955939e-03	3.954701e-03	3.953465e-03	3.952230e-03	3.950996e-03	↵
↳3.949763e-03	3.948531e-03	3.947300e-03	3.946071e-03	3.944842e-03	3.943615e-03	↵
↳3.942389e-03	3.941164e-03	3.939940e-03	3.938718e-03	3.937496e-03	3.936276e-03	↵
↳3.935057e-03	3.933839e-03	3.932622e-03	3.931406e-03	3.930191e-03	3.928977e-03	↵
↳3.927765e-03	3.926554e-03	3.925343e-03	3.924134e-03	3.922926e-03	3.921719e-03	↵
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↳3.906131e-03	3.904939e-03	3.903749e-03	3.902560e-03	3.901372e-03	3.900185e-03	↵
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↳3.863914e-03	3.862761e-03	3.861608e-03	3.860457e-03	3.859307e-03	3.858158e-03	↵
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↳3.803079e-03	3.801979e-03	3.800880e-03	3.799783e-03	3.798686e-03	3.797590e-03	↵
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↳3.783430e-03	3.782347e-03	3.781266e-03	3.780185e-03	3.779105e-03	3.778026e-03	↵
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↳3.751348e-03	3.750293e-03	3.749239e-03	3.748185e-03	3.747132e-03	3.746080e-03	↵
↳3.745029e-03	3.743979e-03	3.742930e-03	3.741882e-03	3.740835e-03	3.739788e-03	↵
↳3.738742e-03	3.737698e-03	3.736654e-03	3.735611e-03	3.734568e-03	3.733527e-03	↵
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↳3.720069e-03	3.719040e-03	3.718012e-03	3.716984e-03	3.715958e-03	3.714932e-03	↵
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↳3.671610e-03	3.670621e-03	3.669632e-03	3.668644e-03	3.667657e-03	3.666671e-03	↵
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↳3.642268e-03	3.641302e-03	3.640337e-03	3.639373e-03	3.638409e-03	3.637446e-03	↵
↳3.636484e-03	3.635522e-03	3.634562e-03	3.633602e-03	3.632643e-03	3.631685e-03	↵
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↳3.619295e-03	3.618347e-03	3.617400e-03	3.616453e-03	3.615508e-03	3.614563e-03	↵
↳3.613619e-03	3.612675e-03	3.611733e-03	3.610791e-03	3.609850e-03	3.608909e-03	↵
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112  
113

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↳3.080177e+01	3.084232e+01	3.088282e+01	3.092327e+01	3.096367e+01	3.100401e+01	↵
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↳3.269173e+01	3.272994e+01	3.276811e+01	3.280623e+01	3.284431e+01	3.288235e+01	↵
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↳3.426002e+01	3.429649e+01	3.433291e+01	3.436930e+01	3.440565e+01	3.444197e+01	↵
↳3.447824e+01	3.451448e+01	3.455067e+01	3.458683e+01	3.462296e+01	3.465904e+01	↵
↳3.469509e+01	3.473110e+01	3.476707e+01	3.480300e+01	3.483890e+01	3.487476e+01	↵
↳3.491059e+01	3.494637e+01	3.498212e+01	3.501784e+01	3.505352e+01	3.508916e+01	↵
↳3.512476e+01	3.516033e+01	3.519587e+01	3.523136e+01	3.526683e+01	3.530225e+01	↵
↳3.533764e+01	3.537300e+01	3.540832e+01	3.544360e+01	3.547885e+01	3.551407e+01	↵
↳3.554925e+01	3.558439e+01	3.561950e+01	3.565458e+01	3.568962e+01	3.572463e+01	↵
↳3.575960e+01	3.579454e+01	3.582944e+01	3.586431e+01	3.589915e+01	3.593395e+01	↵
↳3.596872e+01	3.600346e+01	3.603816e+01	3.607283e+01	3.610747e+01	3.614207e+01	↵
↳3.617664e+01	3.621117e+01	3.624568e+01	3.628015e+01	3.631459e+01	3.634899e+01	↵
↳3.638336e+01	3.641770e+01	3.645201e+01	3.648629e+01	3.652053e+01	3.655474e+01	↵
↳3.658892e+01	3.662307e+01	3.665718e+01	3.669127e+01	3.672532e+01	3.675934e+01	↵
↳3.679333e+01	3.682729e+01	3.686121e+01	3.689511e+01	3.692897e+01	3.696281e+01	↵
↳3.699661e+01	3.703038e+01	3.706412e+01	3.709783e+01	3.713151e+01	3.716516e+01	↵
↳3.719878e+01	3.723237e+01	3.726592e+01	3.729945e+01	3.733295e+01	3.736642e+01	↵
↳3.739986e+01	3.743326e+01	3.746664e+01	3.749999e+01	3.753331e+01	3.756660e+01	↵
↳3.759986e+01	3.763309e+01	3.766629e+01	3.769946e+01	3.773260e+01	3.776571e+01	↵
↳3.779880e+01	3.783185e+01	3.786488e+01	3.789788e+01	3.793085e+01	3.796379e+01	↵
↳3.799670e+01	3.802958e+01	3.806244e+01	3.809526e+01	3.812806e+01	3.816083e+01	↵
↳3.819358e+01	3.822629e+01	3.825898e+01	3.829163e+01	3.832426e+01	3.835687e+01	↵
↳3.838944e+01	3.842199e+01	3.845451e+01	3.848700e+01	3.851947e+01	3.855190e+01	↵
↳3.858431e+01	3.861670e+01	3.864905e+01	3.868138e+01	3.871368e+01	3.874596e+01	↵
↳3.877821e+01	3.881043e+01	3.884262e+01	3.887479e+01	3.890693e+01	3.893905e+01	↵
↳3.897113e+01	3.900320e+01	3.903523e+01	3.906724e+01	3.909922e+01	3.913118e+01	↵
↳3.916311e+01	3.919502e+01	3.922689e+01	3.925875e+01	3.929057e+01	3.932238e+01	↵
↳3.935415e+01	3.938590e+01	3.941763e+01	3.944933e+01	3.948100e+01	3.951265e+01	↵
↳3.954427e+01	3.957587e+01	3.960744e+01	3.963899e+01	3.967051e+01	3.970201e+01	↵
↳3.973348e+01	3.976492e+01	3.979635e+01	3.982774e+01	3.985912e+01	3.989047e+01	↵
↳3.992179e+01	3.995309e+01	3.998436e+01	4.001561e+01	4.004684e+01	4.007804e+01	↵
↳4.010922e+01	4.014037e+01	4.017150e+01	4.020260e+01	4.023368e+01	4.026474e+01	↵
↳4.029577e+01	4.032678e+01	4.035777e+01	4.038873e+01	4.041966e+01	4.045058e+01	↵
↳4.048147e+01	4.051233e+01	4.054318e+01	4.057400e+01	4.060479e+01	4.063557e+01	↵
↳4.066632e+01	4.069704e+01	4.072775e+01	4.075843e+01	4.078908e+01	4.081972e+01	↵
↳4.085033e+01	4.088092e+01	4.091148e+01	4.094202e+01	4.097254e+01	4.100304e+01	↵
↳4.103351e+01	4.106397e+01	4.109440e+01	4.112480e+01	4.115519e+01	4.118555e+01	↵
↳4.121589e+01	4.124620e+01	4.127650e+01	4.130677e+01	4.133702e+01	4.136725e+01	↵
↳4.139746e+01	4.142764e+01	4.145780e+01	4.148794e+01	4.151806e+01	4.154816e+01	↵
↳4.157823e+01	4.160828e+01	4.163832e+01	4.166833e+01	4.169831e+01	4.172828e+01	↵
↳4.175822e+01	4.178815e+01	4.181805e+01	4.184793e+01	4.187779e+01	4.190763e+01	↵
↳4.193745e+01	4.196724e+01	4.199702e+01	4.202677e+01	4.205650e+01	4.208621e+01	↵
↳4.211590e+01	4.214557e+01	4.217522e+01	4.220485e+01	4.223446e+01	4.226404e+01	↵
↳4.229361e+01	4.232315e+01	4.235268e+01	4.238218e+01	4.241167e+01	4.244113e+01	↵
↳4.247057e+01	4.249999e+01	4.252939e+01	4.255878e+01	4.258814e+01	4.261748e+01	↵
↳4.264680e+01	4.267610e+01	4.270538e+01	4.273464e+01	4.276388e+01	4.279310e+01	↵
↳4.282230e+01	4.285148e+01	4.288064e+01	4.290978e+01	4.293890e+01	4.296800e+01	↵
↳4.299709e+01	4.302615e+01	4.305519e+01	4.308421e+01	4.311322e+01	4.314220e+01	↵
↳4.317116e+01	4.320011e+01	4.322903e+01	4.325794e+01	4.328683e+01	4.331569e+01	↵
↳4.334454e+01	4.337337e+01	4.340218e+01	4.343097e+01	4.345974e+01	4.348850e+01	↵
↳4.351723e+01	4.354595e+01	4.357464e+01	4.360332e+01	4.363198e+01	4.366062e+01	↵
↳4.368924e+01	4.371784e+01	4.374642e+01	4.377499e+01	4.380353e+01	4.383206e+01	↵
↳4.386057e+01	4.388906e+01	4.391753e+01	4.394598e+01	4.397442e+01	4.400283e+01	↵
↳4.403123e+01	4.405961e+01	4.408797e+01	4.411632e+01	4.414464e+01	4.417295e+01	↵

↳4.420124e+01	4.422951e+01	4.425776e+01	4.428600e+01	4.431421e+01	4.434241e+01	↵
↳4.437059e+01	4.439875e+01	4.442690e+01	4.445503e+01	4.448314e+01	4.451123e+01	↵
↳4.453930e+01	4.456736e+01	4.459540e+01	4.462342e+01	4.465142e+01	4.467941e+01	↵
↳4.470738e+01	4.473533e+01	4.476326e+01	4.479118e+01	4.481907e+01	4.484696e+01	↵
↳4.487482e+01	4.490267e+01	4.493050e+01	4.495831e+01	4.498610e+01	4.501388e+01	↵
↳4.504164e+01	4.506938e+01	4.509711e+01	4.512482e+01	4.515251e+01	4.518019e+01	↵
↳4.520785e+01	4.523549e+01	4.526311e+01	4.529072e+01	4.531831e+01	4.534589e+01	↵
↳4.537344e+01	4.540098e+01	4.542851e+01	4.545602e+01	4.548351e+01	4.551098e+01	↵
↳4.553844e+01	4.556588e+01	4.559330e+01	4.562071e+01	4.564810e+01	4.567548e+01	↵
↳4.570284e+01	4.573018e+01	4.575751e+01	4.578482e+01	4.581211e+01	4.583939e+01	↵
↳4.586665e+01	4.589389e+01	4.592112e+01	4.594833e+01	4.597553e+01	4.600271e+01	↵
↳4.602988e+01	4.605702e+01	4.608416e+01	4.611127e+01	4.613837e+01	4.616546e+01	↵
↳4.619253e+01	4.621958e+01	4.624662e+01	4.627364e+01	4.630064e+01	4.632763e+01	↵
↳4.635461e+01	4.638156e+01	4.640851e+01	4.643543e+01	4.646234e+01	4.648924e+01	↵
↳4.651612e+01	4.654299e+01	4.656983e+01	4.659667e+01	4.662349e+01	4.665029e+01	↵
↳4.667708e+01	4.670385e+01	4.673061e+01	4.675735e+01	4.678407e+01	4.681078e+01	↵
↳4.683748e+01	4.686416e+01	4.689082e+01	4.691748e+01	4.694411e+01	4.697073e+01	↵
↳4.699733e+01	4.702392e+01	4.705050e+01	4.707706e+01	4.710360e+01	4.713013e+01	↵
↳4.715665e+01	4.718315e+01	4.720963e+01	4.723610e+01	4.726256e+01	4.728900e+01	↵
↳4.731543e+01	4.734184e+01	4.736830e+01	4.739461e+01	4.742098e+01	4.744733e+01	↵
↳4.747367e+01	4.749999e+01	4.752630e+01	4.755260e+01	4.757888e+01	4.760514e+01	↵
↳4.763139e+01	4.765763e+01	4.768385e+01	4.771006e+01	4.773625e+01	4.776243e+01	↵
↳4.778859e+01	4.781474e+01	4.784088e+01	4.786700e+01	4.789310e+01	4.791920e+01	↵
↳4.794528e+01	4.797134e+01	4.799739e+01	4.802343e+01	4.804945e+01	4.807546e+01	↵
↳4.810145e+01	4.812743e+01	4.815340e+01	4.817935e+01	4.820528e+01	4.823121e+01	↵
↳4.825712e+01	4.828301e+01	4.830890e+01	4.833476e+01	4.836062e+01	4.838646e+01	↵
↳4.841229e+01	4.843810e+01	4.846390e+01	4.848968e+01	4.851546e+01	4.854121e+01	↵
↳4.856696e+01	4.859269e+01	4.861841e+01	4.864411e+01	4.866980e+01	4.869548e+01	↵
↳4.872114e+01	4.874679e+01	4.877243e+01	4.879805e+01	4.882366e+01	4.884925e+01	↵
↳4.887484e+01	4.890040e+01	4.892596e+01	4.895150e+01	4.897703e+01	4.900255e+01	↵
↳4.902805e+01	4.905354e+01	4.907901e+01	4.910448e+01	4.912992e+01	4.915536e+01	↵
↳4.918078e+01	4.920619e+01	4.923159e+01	4.925697e+01	4.928234e+01	4.930770e+01	↵
↳4.933305e+01	4.935838e+01	4.938370e+01	4.940900e+01	4.943429e+01	4.945957e+01	↵
↳4.948484e+01	4.951010e+01	4.953534e+01	4.956056e+01	4.958578e+01	4.961098e+01	↵
↳4.963617e+01	4.966135e+01	4.968651e+01	4.971166e+01	4.973680e+01	4.976193e+01	↵
↳4.978704e+01	4.981214e+01	4.983723e+01	4.986231e+01	4.988737e+01	4.991242e+01	↵
↳4.993746e+01	4.996248e+01	4.998749e+01	5.001249e+01	5.003748e+01	5.006246e+01	↵
↳5.008742e+01	5.011237e+01	5.013731e+01	5.016223e+01	5.018715e+01	5.021205e+01	↵
↳5.023693e+01	5.026181e+01	5.028667e+01	5.031152e+01	5.033636e+01	5.036119e+01	↵
↳5.038601e+01	5.041081e+01	5.043560e+01	5.046038e+01	5.048514e+01	5.050990e+01	↵
↳5.053464e+01	5.055937e+01	5.058408e+01	5.060879e+01	5.063348e+01	5.065816e+01	↵
↳5.068283e+01	5.070749e+01	5.073214e+01	5.075677e+01	5.078139e+01	5.080600e+01	↵
↳5.083060e+01	5.085518e+01	5.087976e+01	5.090432e+01	5.092887e+01	5.095341e+01	↵
↳5.097793e+01	5.100245e+01	5.102695e+01	5.105144e+01	5.107592e+01	5.110039e+01	↵
↳5.112484e+01	5.114929e+01	5.117372e+01	5.119814e+01	5.122255e+01	5.124695e+01	↵
↳5.127133e+01	5.129571e+01	5.132007e+01	5.134442e+01	5.136876e+01	5.139309e+01	↵
↳5.141741e+01	5.144171e+01	5.146600e+01	5.149029e+01	5.151456e+01	5.153882e+01	↵
↳5.156306e+01	5.158730e+01	5.161153e+01	5.163574e+01	5.165994e+01	5.168413e+01	↵
↳5.170831e+01	5.173248e+01	5.175664e+01	5.178078e+01	5.180492e+01	5.182904e+01	↵
↳5.185315e+01	5.187725e+01	5.190134e+01	5.192542e+01	5.194949e+01	5.197355e+01	↵
↳5.199759e+01	5.202163e+01	5.204565e+01	5.206966e+01	5.209366e+01	5.211765e+01	↵
↳5.214163e+01	5.216560e+01	5.218955e+01	5.221350e+01	5.223743e+01	5.226136e+01	↵
↳5.228527e+01	5.230917e+01	5.233306e+01	5.235694e+01	5.238081e+01	5.240467e+01	↵
↳5.242852e+01	5.245236e+01	5.247618e+01	5.250000e+01	5.252380e+01	5.254759e+01	↵
↳5.257138e+01	5.259515e+01	5.261891e+01	5.264266e+01	5.266640e+01	5.269013e+01	↵
↳5.271385e+01	5.273755e+01	5.276125e+01	5.278494e+01	5.280861e+01	5.283228e+01	↵
↳5.285593e+01	5.287958e+01	5.290321e+01	5.292683e+01	5.295044e+01	5.297405e+01	↵
↳5.299764e+01	5.302122e+01	5.304479e+01	5.306835e+01	5.309190e+01	5.311544e+01	↵
↳5.313896e+01	5.316248e+01	5.318599e+01	5.320949e+01	5.323297e+01	5.325645e+01	↵
↳5.327992e+01	5.330337e+01	5.332682e+01	5.335025e+01	5.337368e+01	5.339709e+01	↵
↳5.342050e+01	5.344389e+01	5.346728e+01	5.349065e+01	5.351401e+01	5.353737e+01	↵
↳5.356071e+01	5.358404e+01	5.360737e+01	5.363068e+01	5.365398e+01	5.367727e+01	↵
↳5.370055e+01	5.372383e+01	5.374709e+01	5.377034e+01	5.379358e+01	5.381682e+01	↵
↳5.384004e+01	5.386325e+01	5.388645e+01	5.390964e+01	5.393282e+01	5.395600e+01	↵
↳5.397916e+01	5.400231e+01	5.402545e+01	5.404859e+01	5.407171e+01	5.409482e+01	↵
↳5.411792e+01	5.414102e+01	5.416410e+01	5.418717e+01	5.421024e+01	5.423329e+01	↵
↳5.425633e+01	5.427937e+01	5.430239e+01	5.432540e+01	5.434841e+01	5.437140e+01	↵
↳5.439439e+01	5.441736e+01	5.444033e+01	5.446329e+01	5.448623e+01	5.450917e+01	↵
↳5.453210e+01	5.455501e+01	5.457792e+01	5.460082e+01	5.462371e+01	5.464659e+01	↵

↳5.466946e+01	5.469232e+01	5.471517e+01	5.473801e+01	5.476084e+01	5.478366e+01	↵
↳5.480647e+01	5.482928e+01	5.485207e+01	5.487485e+01	5.489763e+01	5.492039e+01	↵
↳5.494315e+01	5.496589e+01	5.498863e+01	5.501136e+01	5.503408e+01	5.505679e+01	↵
↳5.507948e+01	5.510217e+01	5.512485e+01	5.514753e+01	5.517019e+01	5.519284e+01	↵
↳5.521548e+01	5.523812e+01	5.526074e+01	5.528336e+01	5.530596e+01	5.532856e+01	↵
↳5.535115e+01	5.537373e+01	5.539630e+01	5.541886e+01	5.544141e+01	5.546395e+01	↵
↳5.548648e+01	5.550900e+01	5.553152e+01	5.555402e+01	5.557652e+01	5.559901e+01	↵
↳5.562149e+01	5.564395e+01	5.566641e+01	5.568886e+01	5.571131e+01	5.573374e+01	↵
↳5.575616e+01	5.577858e+01	5.580098e+01	5.582338e+01	5.584577e+01	5.586814e+01	↵
↳5.589051e+01	5.591288e+01	5.593523e+01	5.595757e+01	5.597990e+01	5.600223e+01	↵
↳5.602454e+01	5.604685e+01	5.606915e+01	5.609144e+01	5.611372e+01	5.613599e+01	↵
↳5.615826e+01	5.618051e+01	5.620275e+01	5.622499e+01	5.624722e+01	5.626944e+01	↵
↳5.629165e+01	5.631385e+01	5.633604e+01	5.635823e+01	5.638040e+01	5.640257e+01	↵
↳5.642473e+01	5.644687e+01	5.646901e+01	5.649115e+01	5.651327e+01	5.653538e+01	↵
↳5.655749e+01	5.657959e+01	5.660168e+01	5.662376e+01	5.664583e+01	5.666789e+01	↵
↳5.668994e+01	5.671199e+01	5.673403e+01	5.675605e+01	5.677807e+01	5.680008e+01	↵
↳5.682209e+01	5.684408e+01	5.686607e+01	5.688804e+01	5.691001e+01	5.693197e+01	↵
↳5.695393e+01	5.697587e+01	5.699780e+01	5.701973e+01	5.704165e+01	5.706356e+01	↵
↳5.708546e+01	5.710735e+01	5.712924e+01	5.715111e+01	5.717298e+01	5.719484e+01	↵
↳5.721669e+01	5.723853e+01	5.726037e+01	5.728219e+01	5.730401e+01	5.732582e+01	↵
↳5.734762e+01	5.736941e+01	5.739120e+01	5.741297e+01	5.743474e+01	5.745650e+01	↵
↳5.747825e+01	5.750000e+01	5.752173e+01	5.754346e+01	5.756518e+01	5.758689e+01	↵
↳5.760859e+01	5.763028e+01	5.765197e+01	5.767365e+01	5.769532e+01	5.771698e+01	↵
↳5.773863e+01	5.776028e+01	5.778191e+01	5.780354e+01	5.782516e+01	5.784678e+01	↵
↳5.786838e+01	5.788998e+01	5.791157e+01	5.793315e+01	5.795472e+01	5.797629e+01	↵
↳5.799784e+01	5.801939e+01	5.804093e+01	5.806246e+01	5.808399e+01	5.810550e+01	↵
↳5.812701e+01	5.814851e+01	5.817001e+01	5.819149e+01	5.821297e+01	5.823444e+01	↵
↳5.825590e+01	5.827735e+01	5.829880e+01	5.832023e+01	5.834166e+01	5.836308e+01	↵
↳5.838450e+01	5.840590e+01	5.842730e+01	5.844869e+01	5.847007e+01	5.849145e+01	↵
↳5.851282e+01	5.853418e+01	5.855553e+01	5.857687e+01	5.859821e+01	5.861953e+01	↵
↳5.864085e+01	5.866217e+01	5.868347e+01	5.870477e+01	5.872606e+01	5.874734e+01	↵
↳5.876861e+01	5.878988e+01	5.881114e+01	5.883239e+01	5.885363e+01	5.887486e+01	↵
↳5.889609e+01	5.891731e+01	5.893852e+01	5.895973e+01	5.898093e+01	5.900212e+01	↵
↳5.902330e+01	5.904447e+01	5.906564e+01	5.908680e+01	5.910795e+01	5.912909e+01	↵
↳5.915023e+01	5.917136e+01	5.919248e+01	5.921359e+01	5.923470e+01	5.925580e+01	↵
↳5.927689e+01	5.929797e+01	5.931905e+01	5.934012e+01	5.936118e+01	5.938223e+01	↵
↳5.940328e+01	5.942432e+01	5.944535e+01	5.946637e+01	5.948739e+01	5.950840e+01	↵
↳5.952940e+01	5.955040e+01	5.957138e+01	5.959236e+01	5.961333e+01	5.963430e+01	↵
↳5.965526e+01	5.967621e+01	5.969715e+01	5.971808e+01	5.973901e+01	5.975993e+01	↵
↳5.978085e+01	5.980175e+01	5.982265e+01	5.984354e+01	5.986443e+01	5.988530e+01	↵
↳5.990617e+01	5.992704e+01	5.994789e+01	5.996874e+01	5.998958e+01	6.001041e+01	↵
↳6.003124e+01	6.005206e+01	6.007287e+01	6.009367e+01	6.011447e+01	6.013526e+01	↵
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↳6.028059e+01	6.030132e+01	6.032205e+01	6.034277e+01	6.036348e+01	6.038418e+01	↵
↳6.040488e+01	6.042557e+01	6.044625e+01	6.046693e+01	6.048760e+01	6.050826e+01	↵
↳6.052892e+01	6.054956e+01	6.057020e+01	6.059084e+01	6.061146e+01	6.063208e+01	↵
↳6.065270e+01	6.067330e+01	6.069390e+01	6.071449e+01	6.073508e+01	6.075566e+01	↵
↳6.077623e+01	6.079679e+01	6.081735e+01	6.083790e+01	6.085844e+01	6.087898e+01	↵
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↳6.102253e+01	6.104302e+01	6.106349e+01	6.108396e+01	6.110442e+01	6.112477e+01	↵
↳6.114532e+01	6.116576e+01	6.118619e+01	6.120661e+01	6.122703e+01	6.124745e+01	↵
↳6.126785e+01	6.128825e+01	6.130864e+01	6.132903e+01	6.134941e+01	6.136978e+01	↵
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↳6.163400e+01	6.165428e+01	6.167455e+01	6.169481e+01	6.171507e+01	6.173532e+01	↵
↳6.175556e+01	6.177580e+01	6.179603e+01	6.181626e+01	6.183648e+01	6.185669e+01	↵
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↳6.211884e+01	6.213895e+01	6.215907e+01	6.217917e+01	6.219927e+01	6.221937e+01	↵
↳6.223945e+01	6.225953e+01	6.227961e+01	6.229968e+01	6.231974e+01	6.233979e+01	↵
↳6.235984e+01	6.237988e+01	6.239992e+01	6.241995e+01	6.243997e+01	6.245998e+01	↵
↳6.247999e+01	6.250000e+01	6.251999e+01	6.253998e+01	6.255997e+01	6.257995e+01	↵
↳6.259992e+01	6.261988e+01	6.263984e+01	6.265979e+01	6.267974e+01	6.269968e+01	↵
↳6.271961e+01	6.273954e+01	6.275946e+01	6.277937e+01	6.279928e+01	6.281918e+01	↵
↳6.283908e+01	6.285897e+01	6.287885e+01	6.289873e+01	6.291860e+01	6.293846e+01	↵
↳6.295832e+01	6.297817e+01	6.299801e+01	6.301785e+01	6.303768e+01	6.305751e+01	↵
↳6.307733e+01	6.309714e+01	6.311695e+01	6.313675e+01	6.315655e+01	6.317634e+01	↵
↳6.319612e+01	6.321590e+01	6.323567e+01	6.325543e+01	6.327519e+01	6.329494e+01	↵
↳6.331469e+01	6.333443e+01	6.335416e+01	6.337389e+01	6.339361e+01	6.341332e+01	↵

↳6.343303e+01	6.345274e+01	6.347243e+01	6.349212e+01	6.351181e+01	6.353149e+01	↵
↳6.355116e+01	6.357082e+01	6.359048e+01	6.361014e+01	6.362979e+01	6.364943e+01	↵
↳6.366906e+01	6.368869e+01	6.370832e+01	6.372794e+01	6.374755e+01	6.376715e+01	↵
↳6.378675e+01	6.380635e+01	6.382593e+01	6.384551e+01	6.386509e+01	6.388466e+01	↵
↳6.390422e+01	6.392378e+01	6.394333e+01	6.396288e+01	6.398242e+01	6.400195e+01	↵
↳6.402148e+01	6.404100e+01	6.406052e+01	6.408003e+01	6.409953e+01	6.411903e+01	↵
↳6.413852e+01	6.415801e+01	6.417749e+01	6.419696e+01	6.421643e+01	6.423589e+01	↵
↳6.425535e+01	6.427480e+01	6.429424e+01	6.431368e+01	6.433312e+01	6.435254e+01	↵
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↳6.448837e+01	6.450775e+01	6.452712e+01	6.454649e+01	6.456586e+01	6.458521e+01	↵
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↳6.483633e+01	6.485561e+01	6.487488e+01	6.489414e+01	6.491340e+01	6.493266e+01	↵
↳6.495190e+01	6.497115e+01	6.499038e+01	6.500961e+01	6.502884e+01	6.504806e+01	↵
↳6.506727e+01	6.508648e+01	6.510568e+01	6.512488e+01	6.514407e+01	6.516325e+01	↵
↳6.518243e+01	6.520161e+01	6.522078e+01	6.523994e+01	6.525910e+01	6.527825e+01	↵
↳6.529739e+01	6.531653e+01	6.533567e+01	6.535480e+01	6.537392e+01	6.539304e+01	↵
↳6.541215e+01	6.543126e+01	6.545036e+01	6.546946e+01	6.548855e+01	6.550763e+01	↵
↳6.552671e+01	6.554578e+01	6.556485e+01	6.558391e+01	6.560297e+01	6.562202e+01	↵
↳6.564107e+01	6.566011e+01	6.567914e+01	6.569817e+01	6.571720e+01	6.573621e+01	↵
↳6.575523e+01	6.577423e+01	6.579323e+01	6.581223e+01	6.583122e+01	6.585021e+01	↵
↳6.586919e+01	6.588816e+01	6.590713e+01	6.592609e+01	6.594505e+01	6.596400e+01	↵
↳6.598295e+01	6.600189e+01	6.602083e+01	6.603976e+01	6.605868e+01	6.607760e+01	↵
↳6.609652e+01	6.611543e+01	6.613433e+01	6.615323e+01	6.617212e+01	6.619101e+01	↵
↳6.620989e+01	6.622877e+01	6.624764e+01	6.626651e+01	6.628537e+01	6.630422e+01	↵
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↳6.865675e+01	6.867496e+01	6.869316e+01	6.871135e+01	6.872954e+01	6.874773e+01	↵
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↳6.930909e+01	6.932712e+01	6.934515e+01	6.936317e+01	6.938119e+01	6.939921e+01	↵
↳6.941722e+01	6.943522e+01	6.945322e+01	6.947122e+01	6.948921e+01	6.950719e+01	↵
↳6.952517e+01	6.954315e+01	6.956112e+01	6.957909e+01	6.959705e+01	6.961501e+01	↵
↳6.963296e+01	6.965091e+01	6.966886e+01	6.968680e+01	6.970473e+01	6.972266e+01	↵
↳6.974059e+01	6.975851e+01	6.977643e+01	6.979434e+01	6.981225e+01	6.983015e+01	↵
↳6.984805e+01	6.986594e+01	6.988383e+01	6.990172e+01	6.991959e+01	6.993747e+01	↵
↳6.995534e+01	6.997321e+01	6.999107e+01	7.000893e+01	7.002678e+01	7.004463e+01	↵
↳7.006247e+01	7.008031e+01	7.009814e+01	7.011597e+01	7.013380e+01	7.015162e+01	↵
↳7.016944e+01	7.018725e+01	7.020506e+01	7.022286e+01	7.024066e+01	7.025845e+01	↵
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↳7.048936e+01	7.050709e+01	];				