27
2/6

IS-3575

CALCULATED
PRESSURE-BROADENED
LINEWIDTHS OF OZONE

MASTER

G. D. T. Tejwani and E. S. Yeung

AMES LABORATORY, USERDA
IOWA STATE UNIVERSITY
AMES, IOWA

Date Transmitted: April 1975

PREPARED FOR THE U. S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
UNDER CONTRACT W-7405-eng-82

DISTRIBUTION OF THIS DOCUMENT UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

CALCULATED PRESSURE-BROADENED LINEWIDTHS OF OZONE

G. D. T. Tejwani and E. S. Yeung

Ames Laboratory, ERDA
Iowa State University
Ames, Iowa 50010

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Energy Research and Development Administration, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

Date Transmitted: April 1975

PREPARED FOR THE U. S. ENERGY RESEARCH AND DEVELOPMENT
ADMINISTRATION UNDER CONTRACT No. W-7405-eng-82

DISTRIBUTION OF THIS DOCUMENT UNLIMITED

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Energy Research and Development Administration, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

Available from: National Technical Information Service
U. S. Department of Commerce
P.O. Box 1553
Springfield, VA 22161

Price: Microfiche \$2.25

TABLE OF CONTENTS

	Page
ABSTRACT	iv
I. INTRODUCTION	1
II. THEORETICAL PROCEDURE	4
III. COMPUTATIONAL DETAILS	8
IV. RESULTS AND DISCUSSION	15
V. ACKNOWLEDGMENTS	19
VI. REFERENCES	20
VII. APPENDIX A LISTING OF LINEWIDTHS FOR TYPE A BAND	23
VIII. APPENDIX B LISTING OF LINEWIDTHS FOR TYPE B BAND	48

ABSTRACT

Self-broadened and foreign-gas (N_2 and O_2) broadened linewidths of O_3 at 300°K for a wide range of quantum numbers J and K_a , for both type A and type B bands, have been calculated using the Anderson-Tsao-Curnutte theory of line broadening. In the case of O_3 - O_3 collisions, dipole-dipole, dipole-quadrupole, quadrupole-dipole, and quadrupole-quadrupole interactions have been included. For O_3 - N_2 and O_3 - O_2 collisions, dipole-quadrupole and quadrupole-quadrupole interactions were taken into account. Good agreement between the available measured linewidths with the computed values for corresponding transitions was obtained on using the molecular quadrupole moments of O_3 given by Rothenberg and Schaefer III. We have utilized these values for the components of quadrupole moment tensor for O_3 in the extensive calculations of linewidths reported here. Air-broadened linewidths of O_3 at 200°K have also been computed.

Distribution List

Dr. E. S. Yeung	100
TIC	27
Chicago Operations Office, ERDA	1
Ames Laboratory Library	<u>9</u>
	137

I. INTRODUCTION

Ozone, one of the minor constituents of the Earth's atmosphere, plays an important role in relation to climate and air chemical cycles. Measuring infrared absorption in the detection and monitoring of these minor gases in the terrestrial atmosphere has many advantages over conventional wet chemical techniques. A knowledge of the values of air-broadened linewidths of these gases at atmospheric temperatures along with line positions and intensities is required for deriving the spectral absorption of these gases in the telluric spectrum. Also, in the study of radiative energy transfer in the Earth's atmosphere it is necessary to know the widths of individual rotation lines which constitute the rotation-vibration bands of the polyatomic atmospheric gases.

Ozone is an asymmetric top molecule with C_{2v} symmetry and therefore it has complex vibrational-rotational infrared spectra. The direct measurement of linewidth in the infrared bands of this molecule is possible only at very high resolution. So far, no such measurements have been reported. Average air-broadened linewidth for the ν_3 fundamental was estimated to be $0.078 \text{ cm}^{-1} \text{ atm}^{-1}$ at 20°C by Walshaw.¹ Only available measurements on linewidths for individual lines in ozone bands are in microwave by Lichtenstein et al.² They have measured self-broadened linewidths for two transitions in the pure rotation band of O_3 .

Anderson's theory³ of collision broadening of spectral lines, as amplified by Tsao and Curnutte,⁴ has previously been successfully used⁵⁻⁸ for extensive linewidth computations for strongly dipolar asymmetric top molecules. In these calculations⁵⁻⁸ only dipolar interactions were taken into account, the contribution from quadrupolar and other higher-order interactions to the linewidth value estimated to be very small in the presence of strong dipolar interaction was neglected. Recent developments⁹ in the theory make it possible to include the quadrupolar interactions for asymmetric top molecule linewidth calculations. Thus, linewidth calculations can be performed for an asymmetric rotor which has only low to moderate value for its molecular dipole moment such as O_3 . In our computations of self-broadened linewidths of O_3 , dipole-dipole ($\mu\mu$), dipole-quadrupole (μq), quadrupole-dipole ($q\mu$), and quadrupole-quadrupole (qq) interactions have been included. For N_2 - and O_2 -broadened linewidths of ozone, dipole-quadrupole ($\mu\theta$) and quadrupole-quadrupole ($q\theta$) interactions have been taken into account. In the above notation, q and θ refer to quadrupolar interaction for asymmetric top and linear molecules, respectively. Higher-order multipole interactions as well as induced and dispersion interactions are of shorter range. Contributions from these terms to the linewidth value are not expected to be significant and have been neglected in the present work.

Among the available values in literature,¹⁰⁻¹⁴ for the quadrupole moment tensor of O_3 , the calculated values using self-consistent field wave functions by Rothenberg and Schaefer III¹³ were found to lead to best agreement with the measured linewidths². These values for the quadrupole moment components were utilized in further calculations of self- and foreign-gas-broadened linewidths of O_3 .

For O_3-N_2 and O_3-O_2 collisions at 300°K, linewidths have been computed for transitions with $J \leq 35$ and $K_a \leq 15$ for both type A and type B bands. Since the self-broadened linewidths are of less practical importance and since a large amount of computer time is required for these calculations, the results in this case have been limited to transitions with $J \leq 10$ and $K_a \leq 5$ for type A band. For type B band, in addition to transitions with $J \leq 10$ and $K_a \leq 5$, self-broadened linewidths have also been computed for R-branch transitions with $11 \leq J \leq 20$ and $K_a \leq 5$. Air-broadened linewidths of O_3 at 200°K have also been calculated for transitions with $J \leq 35$ and $K_a \leq 15$. The line position, the relative line intensity, and the energy level of the lower state for each transition have also been computed for ν_3 fundamental in type A and ν_2 fundamental in type B bands.

II. THEORETICAL PROCEDURE

The linewidth γ° ($\text{cm}^{-1} \text{ atm}^{-1}$) of a rotational transition is related to the partial (optical) cross section σ_{J_2} for the absorbing molecule 1 and the perturbing molecule 2 by the relation^{3,4}

$$\gamma^\circ = (nv/2\pi c) \sum_{J_2} \rho_{J_2} \sigma_{J_2} \quad (1a)$$

Here n is the number density of molecules at one atmosphere and temperature T , v is the mean collision velocity, ρ_{J_2} is the fractional population of level J_2 of the perturbing molecule, and c is the velocity of light. If the perturbing molecule is an asymmetric top as in the case of self-broadening calculations presented in this work, Eq.(1a) has to be modified slightly because there are $2J+1$ different energy levels for each value of J . These levels are distinguished by a subscript τ .¹⁵ Equation (1a) then takes the following form:

$$\gamma^\circ = (nv/2\pi c) \sum_{J_{\tau_2}} \rho_{J_{\tau_2}} \sigma_{J_{\tau_2}} \quad (1b)$$

The cross section σ_{J_2} ($\sigma_{J_{\tau_2}}$ for an asymmetric perturber) is given by

$$\sigma_{J_2} = \int_0^\infty 2\pi b db S_2(b), \quad (2)$$

where $S_2(b)$ is the second-order radiation interruption function and b is the impact parameter. The interruption function $S_2(b)$ is a measure of the effectiveness of a collision with the impact parameter b in interrupting the radiation. The

expressions for $S_2(b)$ for $\mu\mu$, μq , $q\mu$, and qq interactions have been taken from Ref. 9. It should however be pointed out that the quantity q in the quadrupolar interaction terms in Ref. 9 has been replaced by $2q$ in our computations so that the definition of the quadrupole moment is consistent with that of Ref. 16.

The $S_2(b)$ expressions for $\mu\theta$ and $q\theta$ interactions, i.e., dipole-quadrupole and quadrupole-quadrupole interactions for the case of linear perturbing molecule, are given below

$$[S_2(b)]_{\mu\theta} = \frac{16}{45} \left(\frac{\mu_1 \theta_2}{\hbar v b^3} \right)^2 \left[\sum_{J_{\tau_i}', J_2'} D^2(J_{\tau_i}, J_{\tau_i}') Q^2(J_2, J_2') f_2(k) + \sum_{J_{\tau_f}', J_2'} D^2(J_{\tau_f}, J_{\tau_f}') Q^2(J_2, J_2') f_2(k) \right], \quad (3)$$

and

$$[S_2(b)]_{q\theta} = \frac{16}{25} \left(\frac{q_1 \theta_2}{\hbar v b^4} \right)^2 \left[\sum_{J_{\tau_i}', J_2'} Q^2(J_{\tau_i}, J_{\tau_i}') Q^2(J_2, J_2') f_3(k) + \sum_{J_{\tau_f}', J_2'} Q^2(J_{\tau_f}, J_{\tau_f}') Q^2(J_2, J_2') f_3(k) + 2(=1)^{J_i+J_f} \sqrt{2J_i+1} \sqrt{2J_f+1} Q(J_{\tau_i}, J_{\tau_i}') Q(J_{\tau_f}, J_{\tau_f}') W(J_i J_f J_i J_f; 12) \sum_{J_2'} Q_2^2(J_2, J_2') f_3(k) \right], \quad (4)$$

where μ_1 is the dipole moment of the absorbing molecule; θ_2 is the quadrupole moment¹⁶ of the perturbing molecule; subscripts i and i' identify the unperturbed and perturbed initial states, respectively of the absorbing molecule; f and f' refer to final states. In the above expressions, the subscripts i 's and f 's on J in J_{τ} terms are not explicitly written for the sake of

brevity. The subscripts on J are implied to be the same as that on τ . Quantities $D(J_\tau, J_\tau')$ and $Q(J_\tau, J_\tau')$ for the asymmetric top molecule are defined in Ref. 9. The expressions for $Q^2(J_2, J_2')$, the quadrupole transition probability for a linear molecule, can be seen in Ref. 7. The quantity q is related to the quadrupole moment tensor components of the asymmetric top molecule by

$$q^2 = \theta_{zz}^2 + \frac{1}{3} (\theta_{yy} - \theta_{xx})^2. \quad (5)$$

$W(J_i J_f J_i J_f, 12)$ in Eq.(4) is the Racah coefficient. The expressions for the "off-resonance" functions $f_2(k)$ and $f_3(k)$ [which appear in Eqs. (3) and (4)] are given in Ref. 4 in terms of the energy exchange parameter k defined by

$$k = (2\pi b/hv) \Delta E,$$

where ΔE is the net rotational energy exchanged in a collision.

Using an interpolation scheme proposed by Anderson,³ Eq.(2) can be written as

$$\sigma_{J_2} = \pi b_o^2 + \int_{b_o}^{\infty} 2\pi b db S_2(b), \quad (6)$$

where b_o is determined by the condition

$$S_2(b_o) = 1. \quad (7)$$

When $b_o < b_{\min}$, where $b_{\min}$ is the repulsive minimum collision diameter given by kinetic theory, b_o is set equal to $b_{\min}$.

Equation (6) can be simplified after integration over b to read

$$\sigma_{J_2} = \pi b_0^2 \left\{ 1 + S_2(b) \text{ terms with } f_n(k) \text{ replaced by } F_n(k_0) \right\} \quad (8)$$

The functions $F_1(k_0)$, $F_2(k_0)$, and $F_3(k_0)$ are also given in Ref. 4.

Linewidths have been calculated on an IBM 360/65 digital computer using Eqs. (1) and (8) with the appropriate interruption functions in each case. Computational details are given in the next section. Air-broadened linewidths of O_3 have been calculated by using the relation

$$\gamma_{O_3\text{-air}}^\circ = 0.79 \gamma_{O_3\text{-}N_2}^\circ + 0.21 \gamma_{O_3\text{-}O_2}^\circ \quad (9)$$

Since the line strength S of a transition is related to the dipole transition probability $D^2(J_\tau, J_\tau')$ by

$$S = (2J+1) D^2(J_\tau, J_\tau'),$$

the calculation of the relative line intensity I of the transition can be easily incorporated in the computer program by using

$$I = g \left(\frac{\nu}{\nu_0} \right) (1 - e^{-h\nu/kT}) e^{-E/kT} S. \quad (10)$$

g and E are respectively the statistical weight and energy of the rotational level, J_τ , of the lower state in the transition $J_\tau' \leftarrow J_\tau$. ν is the frequency of the transition, and ν_0 the frequency of the band origin.

III. COMPUTATIONAL DETAILS

Two separate computer programs were written for the purpose of calculations presented in this report, one for the case of self-broadening of ozone and another for the broadening by nitrogen or oxygen. The major difference being the types of interactions to be included in each case. As mentioned earlier, $\mu\mu$, μq , $q\mu$, and qq interactions are taken into account for self-broadening, whereas $\mu\theta$ and $q\theta$ interactions were included for foreign-gas-broadening in this work.

Rotational Hamiltonian matrix elements for computing asymmetric top energy levels were taken from Steenbeckeliers.¹⁷ The energy matrix was factored into four submatrices by using Wang transformation.¹⁸ Eigenvalues as well as eigenvectors of these tridiagonal matrices were obtained by utilizing SUBROUTINE IMTQL2 of the EISPACK subroutine package.¹⁹

Dipole transition probabilities were computed from the matrix elements of the direction cosines in the Wang symmetric rotator basis given in Ref. 20. Wave functions of asymmetric top rotor and hence $t_{K\tau}$'s in Eq.(3) of Ref. 9, are required in the calculation of asymmetric top quadrupole transition probability. The method described in Refs. 18 and 21 was utilized in the computation of $t_{K\tau}$'s.

The results of these subroutines, i.e., rotational energy levels, dipole transition probabilities, and quadrupole transition probabilities were independently checked by

comparison with the tabulations of these quantities in the literature²²⁻²⁴. The selection rules for A-, B-, and C-type bands²² have been incorporated into the computer program.

The selection rules of the non-radiative quadrupole transitions in asymmetric top molecule are $\Delta J = 0, \pm 1, \pm 2$; and ΔK_a and $\Delta K_c = 0, \pm 2, \pm 4, \dots$; where the quantum numbers K_a and K_c are associated with the projection of the total angular momentum (having quantum number J) on the symmetry axis in, respectively, the prolate and oblate symmetric top limiting cases. J and τ are related to K_a and K_c by the following relations

$$\begin{aligned}\tau &= K_a - K_c, \\ J &= K_a + K_c, \text{ if } J + \tau \text{ is even} \\ &= K_a + K_c - 1, \text{ if } J + \tau \text{ is odd.}\end{aligned}\tag{11}$$

The contribution to the linewidth through $S_2(b)$ from dipole transition probability terms for $|\Delta K_a|$ or $|\Delta K_c| > 4$, and from quadrupole transition probability terms for $|\Delta K_a|$ or $|\Delta K_c| > 6$ was found to be completely negligible in the present calculations. This is expected in the case of ozone, which is only slightly asymmetric top. Therefore, in Eqs.(3) and (4) and in the $S_2(b)$ equations for self-broadening from Ref. 9, the summation over both J_{τ_i} and J_{τ_f} was limited to $|\Delta K_a|$ and $|\Delta K_c| \leq 4$ for $D(J_{\tau}, J_{\tau}')$ terms, and $|\Delta K_a|$ and $|\Delta K_c| \leq 6$ for $Q(J_{\tau}, J_{\tau}')$ terms. Furthermore, the contribution from $S_2(b)$ terms with $|\Delta K_a|$ and $|\Delta K_c| > 2$ for quadrupole transition

probability and from terms with $|\Delta K_a|$ and $|\Delta K_c| > 1$ for dipole transition probability is insignificant to the linewidth value for ozone. Therefore, only for summation over J_{τ_2} (i.e., only for the perturbing molecule in the self-broadening), $S_2(b)$ terms involving $Q(J_{\tau_2}, J_{\tau_2}')$ and $D(J_{\tau_2}, J_{\tau_2}')$ were taken into account for $|\Delta K_{2a}|$ and $|\Delta K_{2c}| \leq 2$ and ≤ 1 , respectively. This approximation brings down the CPU time for self-broadening by about 50% with the consequent under-estimation of less than 1% in the linewidth value. Considering the fact that even with this approximation, average CPU time required per transition is about 500 secs. in the self-broadened ozone linewidth calculations, the saving in the computer time is appreciable.

For the perturbing molecule, in the self-broadening, rotational levels with $J_2 \leq 45$ and $K_{2a} \leq 15$ were taken into account. This range of quantum numbers covers 98.41% of the rotational states in the Boltzmann distribution for the ground vibrational state at 300°K. The effect of levels with $J_2 > 45$ and $K_{2a} > 15$ was included by the use of the approximate relation²⁵

$$\Delta\gamma^\circ = \frac{nv}{2\pi c} \left[1 - \sum_{J_{\tau_2}=45, K_{2a}=15}^{\infty} \rho_{J_{\tau_2}} \right] \sigma_c \quad (12)$$

The quantity $\Delta\gamma^\circ$ is the contribution to the linewidth from the rotational levels not included in the direct summation of Eq.(1b). σ_c is the value of $\sigma_{J_{\tau_2}}$ given by Eq.(8) for

$J_2 = 45$ and $K_{2a} = 15$. Similar relation was used for nitrogen- and oxygen-broadened linewidths of ozone to take into account the contribution from the perturber rotational levels not included in the direct summation of Eq.(1a). We have taken $J_2(\text{max}) = 32$ and 36 for N_2 and O_2 , respectively, as the maximum value of quantum number J_2 of the perturber for which σ_{J_2} has been evaluated explicitly in the computer program.

The computer program takes into account the fact that in the ground state of O_3 only symmetric levels occur because of c_{2v} symmetry and zero spin of the ^{16}O nuclei.¹⁵ Also, appropriate statistical weights for the rotational energy levels of N_2 and O_2 were used. All the pertinent data for the rotational levels of ozone under consideration in the self-broadening calculations were put on the tape. The data include the total number of the rotational levels considered (which happens to be 593 for the present calculations) and the fractional Boltzmann population of each level. The total number of allowed non-radiative dipole transitions (limited to $|\Delta K_a|$ and $|\Delta K_c| \leq 1$) and the total number of non-radiative quadrupole transitions (limited to $|\Delta K_a|$ and $|\Delta K_c| \leq 2$) are also included for each of the rotational states. For each of these dipolar and quadrupolar transitions, corresponding transition probability and the rotational energy transfer in the transition are also written on the tape. The use of this data tape eliminates the need for a lot of repetitive calculations in the subsequent runs of the self-broadening computer

program, as it is essential to break the self-broadening computations into several runs because of the excessive amount of computer time taken by these calculations.

Rotational and centrifugal distortion constants, in the ground state of ozone, have been taken from Gora.²⁶ For linewidth results to be applicable to all the bands in a particular band type, small differences in the rotational and centrifugal distortion constants between the ground and upper states of O_3 have been neglected. The ground state rotational and centrifugal distortion constants for nitrogen and oxygen were obtained from the pure rotational Raman spectra of these gases.²⁷ The dipole moment O_3 has been taken from Ref. 2. The quadrupole moments of N_2 and O_2 have been taken from the induced birefringence measurements of Buckingham et al.²⁸

There are several values¹⁰⁻¹⁴ available in the literature for the quadrupole moments of O_3 . Among these values for the quadrupole moment tensor of ozone, only one value¹² is experimental, the rest^{10,11,13,14} are based upon quantum mechanical calculations. Measured quadrupole moments of ozone¹², obtained by means of rotational Zeeman effect, are too large. A note in Ref. 13 indicates that these values may not be reliable. Two sets of theoretical values obtained by Bloor and Maksic¹⁴ for the quadrupole moment components of O_3 have been calculated by CNDO/2D and SCC methods, respectively. The remaining sets of values^{10,11,13} are ab initio calculations. Ab initio calculations as compared to CNDO/2D and SCC

calculations give better agreement with more reliable experimental values for the quadrupole moments in the case of diatomic and symmetric top molecules (see, for example, Table 1 in Ref. 14). Ab initio calculations by Rothenberg and Schaefer¹³ utilize higher accuracy SCF wavefunctions.

From the above discussion, it seems that the value for the quadrupole moment tensor of O_3 obtained in Ref. 13 should be most reliable. This is further strengthened by the fact that the best agreement between the computed and the measured values for the self-broadened linewidths for two microwave transitions in the pure rotational spectrum of ozone² is obtained by using the quadrupole moment components for O_3 from Ref. 13 in the linewidth calculations as shown in Table I. The values¹³ are $\theta_{xx} = 0.36 \times 10^{-26}$ esu $\cdot$ cm², $\theta_{yy} = -2.14 \times 10^{-26}$ esu $\cdot$ cm², and $\theta_{zz} = 1.78 \times 10^{-26}$ esu $\cdot$ cm². These values for the quadrupole moment of O_3 have been used in the extensive computations of linewidths of ozone in this report.

Kinetic theory collision diameters for N_2 and O_2 were taken from Svehla.²⁹ In the absence of any direct value, the molecular diameter of O_3 was obtained by using combining rules and the molecular diameter of O_2 from Ref. 29. In O_2 , the magnetic dipole transitions among the spin states are very weak; therefore dipole-magnetic dipole contributions in O_3 - O_2 broadening can be neglected.⁶

Although linewidth results in this report are very general and should be applicable to all the bands of a particular

Table I. Comparison of experimental and calculated values of the self-broadened linewidths for the pure rotational spectrum of O_3 . Measured values are from Ref. 2.

Transition	$\gamma_{O_3-O_3}^o$ (cm ⁻¹ atm ⁻¹)		Ref. for the Quadru- pole Moment of O_3 Used in the Calcula- tion
	Exptl	Calc	
$0_0, 0^{-1}_{1,1}$	0.1156 ± 0.0044	0.1075	13
		0.1225	11
	0.1200 ± 0.0063	0.1230	10
		0.1398	14 [†]
		0.1562	14 [‡]
		0.4534	12
$6_0, 6^{-6}_{1,5}$	0.1130 ± 0.0048	0.1089	13
		0.1231	11
		0.1250	10
		0.1418	14 [†]
		0.1586	14 [‡]
		0.4508	12

[†] CNDO/2D values

[‡] SCC values

band type, line position and relative line intensity calculations have to be restricted to individual bands. We have chosen ν_3 and ν_2 fundamentals among the type A and type B bands, respectively, for these computations. The band origins for these two fundamentals have been taken from Refs. 30 (ν_2 band) and 31 (ν_3 band).

IV. RESULTS AND DISCUSSION

N_2 - and O_2 -broadened linewidths of O_3 at 300°K for more than 1200 transitions have been computed for type A as well as type B bands. These transitions are in the range of $0 \leq J \leq 35$ and $0 \leq K_a \leq 15$, with the restriction that $\Delta K_a \leq 1$ (i.e., only transitions with $\Delta K_a = 1$ for type B band and with $\Delta K_a = 0$ for type A band have been considered). Thus weak transitions are excluded. Still, the tabulation of linewidths is quite lengthy. Therefore, for the sake of continuity in the text, linewidth results have been put at the end in Appendices A and B for bands of type A and type B, respectively. For O_3 , because of its C_{2v} symmetry, only the ν_3 fundamental and its odd overtone or combination bands belong to type A. All other bands are of type B.

For both types of bands, air-broadened linewidths of O_3 at 200°K are also given in Appendices. Air-broadened linewidths of O_3 are important parameters in theoretical models to predict either absorption or emission spectra of O_3 bands under given conditions of instrumental resolution at

atmospheric temperature and pressure. From the values of $\gamma_{O_3-N_2}^\circ$ and $\gamma_{O_3-O_2}^\circ$ at 300°K, $\gamma_{O_3-air}^\circ$ at 300°K can be easily calculated by using Eq.(9). $\gamma_{O_3-air}^\circ$ at any other temperature T of atmospheric interest can be obtained by the use of the relation

$$\gamma^\circ(T) \propto T^{-n} \quad (13)$$

where exponent n in the power law is determined by

$$n = \ln \left[\frac{\gamma^\circ(200)}{\gamma^\circ(300)} \right] / \ln \left(\frac{3}{2} \right). \quad (14)$$

Self-broadened linewidths of ozone for a very limited number of transitions are also tabulated in Appendices. Weighted average linewidths of ozone broadened by N₂, O₂, air, and O₃ at 300°K and by N₂, O₂, and air at 200°K are given in Table II. Averaging has been performed over only those transitions for which linewidths are given in Appendices. Weighting has been done with respect to the relative line intensity of the transition.

Rotational energy level of the lower state for each transition along with its line position and relative line intensity have also been tabulated in the Appendices. Line positions in Appendix A (type A band) refer to ν_3 fundamental and in Appendix B (type B band) refer to ν_2 fundamental. However, it should be pointed out that the values for line positions and relative line intensities obtained in the present work may not be very precise because the upper state molecular constants have been assumed to be the same as corresponding ground state constants. For more accurate values of these

Table II. Weighted average linewidths of ozone. Units of linewidth are $\text{cm}^{-1} \text{ atm}^{-1}$.

Band Type	Broadener	Average Linewidth	
		at 300°K	at 200°K
A	N ₂	0.0752	0.0991
	O ₂	0.0411	0.0538
	Air	0.0681	0.0896
	O ₃	0.1128	
B	N ₂	0.0640	0.0861
	O ₂	0.0362	0.0474
	Air	0.0582	0.0780
	O ₃	0.1104	

two quantities in ν_2 and ν_3 fundamentals as well as other bands of O_3 of atmospheric interest, one may refer to McClatchey et al.³² In this compilation of line parameters³², transitions up to $J=60$ with absolute intensities greater than $3.5 \times 10^{-23} \text{ cm}^{-1}/\text{mol} \cdot \text{cm}^2$ have been tabulated for the ν_2 fundamental. Similarly, the range of J for transitions in the ν_3 band is larger than present work. A constant mean value for the linewidth, taken to be $0.11 \text{ cm}^{-1} \text{ atm}^{-1}$, was used for all transitions in the compilation.³²

In appendices A and B, the linewidth value would remain unchanged for an interchange of lower and upper state quantum numbers. $\gamma_{0_3-N_2}^\circ$, $\gamma_{0_3-air}^\circ$, and $\gamma_{0_3-O_3}^\circ$ show quite appreciable variation among the linewidth values with respect to the quantum numbers. For $\gamma_{0_3-O_2}^\circ$, because of very low value of the quadrupole moment of oxygen,²⁸ quantum number dependence is not strong.

Computer programs used in this work can be utilized for similar calculations on any other asymmetric molecule with C_{2v} symmetry. Minor modifications in the main program would be required for asymmetric molecules of any other symmetry.

V. ACKNOWLEDGMENTS

We would like to thank Prof. G. Yamamoto and Dr. T. Aoki for providing us a computer subroutine to calculate the quadrupole transition probabilities for an asymmetric top rotor.

VI. REFERENCES

1. C. D. Walshaw, Proc. Phys. Soc., A68, 530 (1955).
2. M. Lichtenstein, J. J. Gallagher, and S. A. Clough, J. Mol. Spectrosc., 40, 10 (1971).
3. P. W. Anderson, Phys. Rev., 76, 647 (1949).
4. C. J. Tsao and B. Curnutte, J. Quant. Spectrosc. Radiat. Transfer, 2, 41 (1962).
5. W. S. Benedict and L. D. Kaplan, J. Chem. Phys., 30, 388 (1959).
6. W. S. Benedict and L. D. Kaplan, J. Quant. Spectrosc. Radiat. Transfer, 4, 453 (1964).
7. P. Varanasi, G. D. T. Tejwani, and C. R. Prasad, J. Quant. Spectrosc. Radiat. Transfer, 11, 231 (1971).
8. G. D. T. Tejwani, J. Chem. Phys., 57, 4676 (1972).
9. G. Yamamoto and T. Aoki, J. Quant. Spectrosc. Radiat. Transfer, 12, 227 (1972).
10. C. Petrongolo, E. Scrocco, and J. Tomasi, J. Chem. Phys., 48, 407 (1968).
11. R. D. Brown, F. R. Burden, and G. R. Williams, Theoret. Chim. Acta, 18, 98 (1970).
12. J. M. Pochan, R. G. Stone, and W. H. Flygare, J. Chem. Phys., 51, 4278 (1969).
13. S. Rothenberg and H. F. Schaefer III, Mol. Phys., 21, 317 (1971).

14. J. E. Bloor and Z. B. Maksic, *Mol. Phys.*, 22, 351 (1971).
15. G. Herzberg, Infrared and Raman Spectra, (Van Nostrand, Princeton, N. J., 1945).
16. D. E. Stogryn and A. P. Stogryn, *Mol. Phys.*, 11, 371 (1966).
17. G. Steenbeckeliers, *Ann. Soc. Sci. Bruxelles*, 82, 331 (1968).
18. G. W. King, R. M. Hainer, and P. C. Cross, *J. Chem. Phys.*, 11, 27 (1943).
19. B. S. Garbow and J. J. Dongarra, Path Chart and Documentation for the EISPACK Package of Matrix Eigensystem Routines, Technical Memorandum No. 250, Applied Mathematics Division, Argonne National Lab., Argonne, Ill. 60439, July 1974, 4th ed.
20. R. H. Schwendeman, *J. Mol. Spectrosc.*, 7, 280 (1961).
21. P. C. Cross, R. M. Hainer, and G. W. King, *J. Chem. Phys.*, 12, 210 (1944).
22. C. H. Allen, Jr. and P. C. Cross, Molecular Vib-Rotors, (Wiley, New York, 1963).
23. P. F. Wacker and M. R. Pratto, Microwave Spectral Tables, Volume II. Line Strengths of Asymmetric Rotors, (NBS Monograph, 70, 1964).
24. T. Aoki (private communication, 1972).
25. Krishnaji, Research Report No. 3, Microwave Laboratory, Physics Department, University of Allahabad, India, 1964.
26. E. K. Gora, *J. Mol. Spectrosc.*, 3, 78 (1959).

27. R. J. Butcher, D. V. Willetts, and W. J. Jones, Proc. Roy. Soc. Lond., A324, 231 (1971).
28. A. D. Buckingham, R. L. Disch, and D. A. Dunmur, J. Am. Chem. Soc., 90, 3104 (1968).
29. R. A. Svehla, N.A.S.A. Tech. Rept. R-132, (U. S. Government Printing Office, Washington, D. C., 1962).
30. T. Tanaka and Y. Morino, J. Mol. Spectrosc., 33, 552 (1970).
31. S. A. Clough and F. X. Kneizys, J. Chem. Phys., 44, 1855 (1966).
32. R. A. McClatchey, W. S. Benedict, S. A. Clough, D. E. Burch, R. F. Calfee, K. Fox, L. S. Rothman, and J. S. Garing, Atmospheric Absorption Line Parameters Compilation, AFCRL-TR-73-0096, Environmental Research Paper No. 434, 26 January 1973.

VII. APPENDIX A

LISTING OF LINEWIDTHS FOR TYPE A BAND

Linewidths and other spectral parameters for transitions in a type A band of ozone are listed in this Appendix. First three columns in the tabulation refer to the lower state quantum numbers J , K_a , and K_c , respectively; while column numbers 4 to 6 give these quantum numbers for the upper state of the transition. Column number 7 shows the line position in cm^{-1} for the transition in the ν_3 fundamental of O_3 . Rotational energy level in cm^{-1} for the lower state is given in the column 8 and the relative line intensity for the transition in the ν_3 band is shown in the column 9. Next four columns, i.e., columns 10 through 13 list self-, N_2 -, O_2 -, and air-broadened linewidths of ozone given in the units of $10^{-4} \text{ cm}^{-1} \text{ atm}^{-1}$. $\gamma_{\text{O}_3\text{-air}}^\circ$ is at 200°K , all other linewidth values reported here are at 300°K . Self-broadened linewidths have not been calculated for all the transitions in the listing. A blank appears in the column 10 for the transition when $\gamma_{\text{O}_3\text{-O}_3}^\circ$ has not been computed.

Listing of Linewidth Parameters for Type A Band of Ozone

Lower State			Upper State			Line Position in the ν_3 Band (cm^{-1})	Rotational Energy of the Lower State (cm^{-1})	Relative Line Intensity for the ν_3 Band	γ° (in $10^{-4} \text{ cm}^{-1} \text{ atm}^{-1}$) of Ozone Lines Broadened by			
J	K_a	K_c	J	K_a	K_c				O_3 300°K	N_2	O_2	Air 200°K
0	0	0	1	0	1	1042.935	0.0	0.994	1043	704	380	865
1	1	1	2	1	2	1043.725	3.948	1.464	1038	688	376	843
1	1	1	1	1	0	1042.146	3.948	1.462	1036	687	376	842
2	0	2	3	0	3	1044.614	2.519	2.951	1053	693	374	854
2	0	2	1	0	1	1040.417	2.519	1.959	1046	694	375	852
2	1	1	3	1	2	1044.691	5.729	2.583	1046	693	377	852
2	1	1	2	1	2	1041.944	5.729	0.805	1042	695	378	852
2	1	1	1	1	0	1040.365	5.729	1.447	1040	689	376	845
2	2	0	3	2	1	1044.618	15.052	1.544	1042	692	376	854
2	2	0	2	2	1	1042.095	15.052	3.080	1037	681	372	840
3	1	3	4	1	4	1045.354	8.022	3.596	1048	658	362	812
3	1	3	3	1	2	1042.399	8.022	0.558	1047	692	377	852
3	1	3	2	1	2	1039.652	8.022	2.542	1042	667	367	819
3	2	2	4	2	3	1045.455	17.572	2.748	1041	686	373	847
3	2	2	3	2	1	1042.099	17.572	2.130	1047	693	377	857
3	2	2	2	2	1	1039.576	17.572	1.518	1042	691	376	853
3	3	1	4	3	2	1045.457	33.228	1.487	1035	681	373	836
3	3	1	3	3	0	1042.096	33.228	4.446	1021	666	367	816
4	0	4	5	0	5	1046.284	8.391	4.788	1023	651	357	809
4	0	4	3	0	3	1038.742	8.391	3.803	1041	675	366	835
4	1	3	5	1	4	1046.419	11.785	4.525	1042	681	370	841
4	1	3	4	1	4	1041.591	11.785	0.422	1050	694	376	857
4	1	3	3	1	2	1038.636	11.785	3.508	1055	697	378	859
4	2	2	5	2	3	1046.307	20.940	3.789	1040	677	369	839
4	2	2	4	2	3	1042.087	20.940	1.616	1034	676	369	835
4	2	2	3	2	1	1038.730	20.940	2.686	1041	686	373	848
4	3	1	5	3	2	1046.298	36.589	2.678	1040	684	373	841
4	3	1	4	3	2	1042.096	36.589	3.375	1046	689	375	847
4	3	1	3	3	0	1038.735	36.589	1.454	1041	683	373	838
4	4	0	5	4	1	1046.297	58.489	1.356	1068	693	379	851
4	4	0	4	4	1	1042.096	58.489	5.402	1055	672	370	823
5	1	5	6	1	6	1046.979	15.351	5.408	1027	621	348	771
5	1	5	5	1	4	1042.853	15.351	0.339	1028	667	365	824
5	1	5	4	1	4	1038.025	15.351	4.411	1044	646	357	800
5	2	4	6	2	5	1047.133	25.130	4.719	1059	705	378	866
5	2	4	5	2	3	1042.117	25.130	1.289	1042	674	367	835
5	2	4	4	2	3	1037.897	25.130	3.682	1036	672	367	832
5	3	3	6	3	4	1047.139	40.791	3.694	1026	663	364	818

5	3	3	5	3	2	1042.096	40.791	2.695	1034	674	369	829
5	3	3	4	3	2	1037.894	40.791	2.603	1039	683	373	840
5	4	2	6	4	3	1047.138	62.690	2.463	1057	694	377	855
5	4	2	5	4	1	1042.096	62.690	4.314	1064	697	380	858
5	4	2	4	4	1	1037.895	62.690	1.318	1051	683	374	839
5	5	1	6	5	2	1047.137	90.820	1.184	1064	696	378	857
5	5	1	5	5	0	1042.096	90.820	5.890	1042	678	371	835
6	0	6	7	0	7	1047.942	17.597	6.422	1111	723	383	873
6	0	6	5	0	5	1037.077	17.597	5.447	1087	741	395	905
6	1	5	7	1	6	1048.144	21.294	6.186	1107	730	391	888
6	1	5	6	1	6	1041.036	21.294	0.278	1020	649	358	808
6	1	5	5	1	4	1036.910	21.294	5.204	1019	656	360	814
6	2	4	7	2	5	1048.005	30.209	5.556	1077	711	380	869
6	2	4	6	2	5	1042.053	30.209	1.060	1093	717	382	872
6	2	4	5	2	3	1037.038	30.209	4.560	1081	723	387	887
6	3	3	7	3	4	1047.981	45.834	4.582	1113	741	398	900
6	3	3	6	3	4	1042.095	45.834	2.220	1019	652	359	806
6	3	3	5	3	2	1037.052	45.834	3.570	1027	664	364	819
6	4	2	7	4	3	1047.979	67.732	3.403	1022	662	363	820
6	4	2	6	4	3	1042.096	67.732	3.554	1046	684	372	845
6	4	2	5	4	1	1037.054	67.732	2.381	1054	692	376	852
6	5	1	7	5	2	1047.978	95.861	2.163	1081	719	387	884
6	5	1	6	5	2	1042.096	95.861	4.853	1073	709	383	873
6	5	1	5	5	0	1037.054	95.861	1.144	1062	697	378	858
6	6	0	7	6	1	1047.977	130.199	0.994		723	382	869
6	6	0	6	6	1	1042.096	130.199	5.927		716	379	856
7	1	7	8	1	8	1048.602	25.929	6.951	1144	737	393	888
7	1	7	7	1	6	1043.509	25.929	0.236	1167	746	400	896
7	1	7	6	1	6	1036.401	25.929	5.980	1106	756	404	920
7	2	6	8	2	7	1048.808	36.042	6.308	1121	741	395	900
7	2	6	7	2	5	1042.172	36.042	0.890	1036	670	362	821
7	2	6	6	2	5	1036.221	36.042	5.340	1057	696	373	851
7	3	5	8	3	6	1048.822	51.718	5.364	1156	752	402	906
7	3	5	7	3	4	1042.097	51.718	1.857	1182	766	410	921
7	3	5	6	3	4	1036.211	51.718	4.403	1112	741	397	900
7	4	4	8	4	5	1048.820	73.615	4.215	1124	738	398	900
7	4	4	7	4	3	1042.096	73.615	2.990	1003	641	355	796
7	4	4	6	4	3	1036.213	73.615	3.270	1030	667	365	826
7	5	3	8	5	4	1048.818	101.743	2.992	1046	690	372	850
7	5	3	7	5	2	1042.096	101.743	4.083	1089	727	389	894
7	5	3	6	5	2	1036.214	101.743	2.078	1081	719	387	885
7	6	2	8	6	3	1048.818	136.081	1.822		753	397	907
7	6	2	7	6	1	1042.096	136.081	4.987		723	383	873
7	6	2	6	6	1	1036.214	136.081	0.955		721	381	867
7	7	1	8	7	2	1048.817	176.601	0.804		716	375	849
7	7	1	7	7	0	1042.096	176.601	5.589		714	374	841
8	0	8	9	0	9	1049.583	30.112	7.785	1193	774	411	935
8	0	8	7	0	7	1035.427	30.112	6.825	1161	758	402	916
8	1	7	9	1	8	1049.863	34.251	7.547	1182	768	409	920
8	1	7	8	1	8	1040.280	34.251	0.200	1125	729	387	879
8	1	7	7	1	6	1035.188	34.251	6.590	1150	742	395	891
8	2	6	9	2	7	1049.715	42.880	6.970	1208	783	419	946
8	2	6	8	2	7	1041.969	42.880	0.757	1213	781	418	946
8	2	6	7	2	5	1035.333	42.880	6.023	1154	765	408	929

8	3	5	9	3	6	1049.666	58.446	6.049	1195	776	416	935
8	3	5	8	3	6	1042.094	58.446	1.593	1128	730	391	884
8	3	5	7	3	4	1035.369	58.446	5.125	1156	752	402	906
8	4	4	9	4	5	1049.661	80.339	4.916	1215	778	424	945
8	4	4	8	4	5	1042.096	80.339	2.552	1226	781	427	948
8	4	4	7	4	3	1035.372	80.339	4.027	1148	754	409	922
8	5	3	9	5	4	1049.659	108.466	3.701	1131	760	408	927
8	5	3	8	5	4	1042.096	108.466	3.484	1002	638	352	790
8	5	3	7	5	2	1035.374	108.466	2.859	1045	690	372	850
8	6	2	9	6	3	1049.658	142.802	2.523		725	383	875
8	6	2	8	6	3	1042.096	142.802	4.256		774	410	931
8	6	2	7	6	1	1035.374	142.802	1.741		747	395	902
8	7	1	9	7	2	1049.657	183.322	1.477		750	391	889
8	7	1	8	7	2	1042.096	183.322	4.770		713	374	850
8	7	1	7	7	0	1035.374	183.322	0.768		714	375	848
8	8	0	9	8	1	1049.657	229.994	0.627		700	368	831
8	8	0	8	8	1	1042.096	229.994	4.981		702	369	830
9	1	9	10	1	10	1050.219	39.750	8.190	1198	776	414	929
9	1	9	9	1	8	1044.364	39.750	0.175	1226	793	425	946
9	1	9	8	1	8	1034.781	39.750	7.242	1176	764	408	918
9	2	8	10	2	9	1050.479	50.301	7.552	1185	763	406	912
9	2	8	9	2	7	1042.294	50.301	0.650	1158	749	399	900
9	2	8	8	2	7	1034.548	50.301	6.625	1165	749	399	903
9	3	7	10	3	8	1050.506	66.012	6.641	1224	787	425	947
9	3	7	9	3	6	1042.100	66.012	1.372	1252	806	437	969
9	3	7	8	3	6	1034.528	66.012	5.746	1196	776	416	936
9	4	6	10	4	7	1050.502	87.904	5.519	1207	776	419	935
9	4	6	9	4	5	1042.096	87.904	2.200	1168	750	405	912
9	4	6	8	4	5	1034.531	87.904	4.671	1183	757	410	918
9	5	5	10	5	6	1050.500	116.029	4.306	1197	790	426	956
9	5	5	9	5	4	1042.095	116.029	3.004	1224	806	437	979
9	5	5	8	5	4	1034.533	116.029	3.516	1130	760	408	927
9	6	4	10	6	5	1050.499	150.365	3.116		763	403	916
9	6	4	9	6	3	1042.096	150.365	3.670		653	355	799
9	6	4	8	6	3	1034.534	150.365	2.396		732	385	880
9	7	3	10	7	4	1050.498	190.884	2.045		742	388	880
9	7	3	9	7	2	1042.096	190.884	4.113		784	410	926
9	7	3	8	7	2	1034.534	190.884	1.403		753	392	890
9	8	2	10	8	3	1050.497	237.556	1.154		737	383	868
9	8	2	9	8	1	1042.096	237.556	4.295		694	366	827
9	8	2	8	8	1	1034.534	237.556	0.596		700	368	831
9	9	1	10	9	2	1050.497	290.345	0.473		689	364	818
9	9	1	9	9	0	1042.096	290.345	4.220		695	366	821
10	0	10	11	0	11	1051.206	45.900	8.831	1232	792	425	947
10	0	10	9	0	9	1033.795	45.900	7.893	1212	784	419	942
10	1	9	11	1	10	1051.575	50.642	8.575	1216	782	418	929
10	1	9	10	1	10	1039.327	50.642	0.150	1174	759	404	909
10	1	9	9	1	8	1033.471	50.642	7.644	1204	779	416	930
10	2	8	11	2	9	1051.440	58.980	8.035	1251	807	435	963
10	2	8	10	2	9	1041.800	58.980	0.560	1251	805	434	961
10	2	8	9	2	7	1033.616	58.980	7.125	1229	797	428	956
10	3	7	11	3	8	1051.355	74.431	7.142	1237	792	428	944
10	3	7	10	3	8	1042.088	74.431	1.191	1193	766	411	918
10	3	7	9	3	6	1033.682	74.431	6.272	1224	788	425	945

10	4	6	11	4	7	1051.344	96.310	6.029	1261	807	441	972
10	4	6	10	4	7	1042.096	96.310	1.910	1271	813	444	978
10	4	6	9	4	5	1033.689	96.310	5.213	1239	796	435	963
10	5	5	11	5	6	1051.341	124.433	4.816	1218	800	433	965
10	5	5	10	5	6	1042.096	124.433	2.609	1169	771	414	930
10	5	5	9	5	4	1033.692	124.433	4.067	1199	790	426	957
10	6	4	11	6	5	1051.339	158.767	3.617		801	425	944
10	6	4	10	6	5	1042.096	158.767	3.187		816	433	962
10	6	4	9	6	3	1033.693	158.767	2.944		770	407	919
10	7	3	11	7	4	1051.338	199.286	2.523		758	396	893
10	7	3	10	7	4	1042.096	199.286	3.572		677	361	814
10	7	3	9	7	2	1033.694	199.286	1.932		740	387	880
10	8	2	11	8	3	1051.337	245.957	1.597		738	385	870
10	8	2	10	8	3	1042.096	245.957	3.730		770	401	904
10	8	2	9	8	1	1033.694	245.957	1.090		737	383	868
10	9	1	11	9	2	1051.337	298.746	0.870		721	376	849
10	9	1	10	9	2	1042.096	298.746	3.665		681	361	810
10	9	1	9	9	0	1033.695	298.746	0.447		689	364	818
10	10	0	11	10	1	1051.337	357.612	0.344		581	361	804
10	10	0	10	10	1	1042.096	357.612	3.412		687	363	807
11	1	11	12	1	12	1051.832	56.804	9.097		782	419	926
11	1	11	11	1	10	1045.413	56.804	0.134		798	429	942
11	1	11	10	1	10	1033.165	56.804	8.176		779	416	927
11	2	10	12	2	11	1052.146	67.902	8.448		770	414	911
11	2	10	11	2	9	1042.519	67.902	0.486		771	413	916
11	2	10	10	2	9	1032.879	67.902	7.557		770	412	915
11	3	9	12	3	10	1052.192	83.676	7.555		793	431	944
11	3	9	11	3	8	1042.110	83.676	1.038		812	442	965
11	3	9	10	3	8	1032.843	83.676	6.708		790	428	945
11	4	8	12	4	9	1052.186	105.558	6.450		786	426	941
11	4	8	11	4	7	1042.096	105.558	1.667		777	420	934
11	4	8	10	4	7	1032.848	105.558	5.662		785	425	943
11	5	7	12	5	8	1052.182	133.677	5.240		808	437	968
11	5	7	11	5	6	1042.096	133.677	2.278		824	449	989
11	5	7	10	5	6	1032.851	133.677	4.524		800	432	964
11	6	6	12	6	7	1052.179	168.010	4.033		798	425	940
11	6	6	11	6	5	1042.096	168.010	2.783		775	411	916
11	6	6	10	6	5	1032.853	168.010	3.397		793	421	938
11	7	5	12	7	6	1052.178	208.528	2.921		782	409	909
11	7	5	11	7	4	1042.096	208.528	3.119		798	420	928
11	7	5	10	7	4	1032.854	208.528	2.369		759	397	893
11	8	4	12	8	5	1052.177	255.199	1.967		745	388	870
11	8	4	11	8	3	1042.096	255.199	3.257		691	366	823
11	8	4	10	8	3	1032.854	255.199	1.500		739	385	870
11	9	3	12	9	4	1052.177	307.987	1.202		728	380	854
11	9	3	11	9	2	1042.096	307.987	3.200		752	392	878
11	9	3	10	9	2	1032.855	307.987	0.817		721	376	849
11	10	2	12	10	3	1052.177	366.853	0.633		706	371	828
11	10	2	11	10	1	1042.096	366.853	2.979		672	358	796
11	10	2	10	10	1	1032.855	366.853	0.323		681	361	804
11	11	1	12	11	2	1052.177	431.752	0.242		670	358	790
11	11	1	11	11	0	1042.096	431.752	2.641		676	359	793
12	0	12	13	0	13	1052.810	64.925	9.538		791	427	939
12	0	12	11	0	11	1032.181	64.925	8.627		791	426	942

12	1	11	13	1	12	1053.278	70.454	9.251	781	421	919
12	1	11	12	1	12	1038.182	70.454	0.116	766	410	908
12	1	11	11	1	10	1031.763	70.454	8.351	785	421	927
12	2	10	13	2	11	1053.179	78.537	8.745	812	440	961
12	2	10	12	2	11	1041.510	78.537	0.420	807	436	954
12	2	10	11	2	9	1031.884	78.537	7.870	809	437	961
12	3	9	13	3	10	1053.048	93.795	7.880	794	433	938
12	3	9	12	3	10	1042.073	93.795	0.908	774	420	918
12	3	9	11	3	8	1031.991	93.795	7.054	795	432	943
12	4	8	13	4	9	1053.029	115.648	6.786	812	446	971
12	4	8	12	4	9	1042.095	115.648	1.460	815	448	974
12	4	8	11	4	7	1032.006	115.648	6.023	810	443	971
12	5	7	13	5	8	1053.023	143.763	5.581	807	438	964
12	5	7	12	5	8	1042.096	143.763	1.996	788	425	941
12	5	7	11	5	6	1032.010	143.763	4.893	807	437	969
12	6	6	13	6	7	1053.020	178.094	4.372	811	432	948
12	6	6	12	6	7	1042.096	178.094	2.438	823	440	965
12	6	6	11	6	5	1032.012	178.094	3.767	807	428	946
12	7	5	13	7	6	1053.019	218.610	3.248	783	411	908
12	7	5	12	7	6	1042.096	218.610	2.733	761	398	886
12	7	5	11	7	4	1032.013	218.610	2.728	781	409	909
12	8	4	13	8	5	1053.018	265.281	2.272	758	396	877
12	8	4	12	8	5	1042.096	265.281	2.854	773	403	894
12	8	4	11	8	3	1032.014	265.281	1.837	745	388	870
12	9	3	13	9	4	1053.017	318.069	1.478	730	382	850
12	9	3	12	9	4	1042.096	318.069	2.804	695	367	821
12	9	3	11	9	2	1032.015	318.069	1.123	728	380	854
12	10	2	13	10	3	1053.017	376.934	0.874	715	376	836
12	10	2	12	10	3	1042.096	376.934	2.611	732	383	854
12	10	2	11	10	1	1032.015	376.934	0.591	706	371	828
12	11	1	13	11	2	1053.017	441.833	0.445	692	366	810
12	11	1	12	11	2	1042.096	441.833	2.314	661	356	784
12	11	1	11	11	0	1032.015	441.833	0.226	670	358	790
12	12	0	13	12	1	1053.016	512.715	0.165	657	355	777
12	12	0	12	12	1	1042.096	512.715	1.960	662	356	779
13	1	13	14	1	14	1053.439	77.081	9.662	775	418	911
13	1	13	13	1	12	1046.651	77.081	0.106	790	428	926
13	1	13	12	1	12	1031.555	77.081	8.773	777	418	918
13	2	12	14	2	13	1053.807	88.833	8.996	767	414	900
13	2	12	13	2	11	1042.883	88.833	0.366	775	418	915
13	2	12	12	2	11	1031.215	88.833	8.142	771	415	908
13	3	11	14	3	12	1053.878	104.711	8.123	790	433	933
13	3	11	13	3	10	1042.132	104.711	0.796	808	443	953
13	3	11	12	3	10	1031.157	104.711	7.318	791	432	937
13	4	10	14	4	11	1053.871	126.580	7.040	784	427	932
13	4	10	13	4	9	1042.096	126.580	1.282	782	426	934
13	4	10	12	4	9	1031.163	126.580	6.301	787	428	939
13	5	9	14	5	10	1053.864	154.690	5.845	807	439	960
13	5	9	13	5	8	1042.096	154.690	1.753	822	450	980
13	5	9	12	5	8	1031.169	154.690	5.182	807	438	963
13	6	8	14	6	9	1053.861	189.018	4.639	800	428	935
13	6	8	13	6	7	1042.096	189.018	2.142	787	419	920
13	6	8	12	6	7	1031.172	189.018	4.060	802	428	941
13	7	7	14	7	8	1053.859	229.533	3.509	785	415	907

13	7	7	13	7	6	1042.096	229.533	2.401	801	423	923
13	7	7	12	7	6	1031.173	229.533	3.016	783	411	908
13	8	6	14	8	7	1053.858	276.202	2.519	758	397	874
13	8	6	13	8	5	1042.096	276.202	2.507	742	387	859
13	8	6	12	8	5	1031.174	276.202	2.110	759	396	878
13	9	5	14	9	6	1053.857	328.990	1.704	738	386	851
13	9	5	13	9	4	1042.096	328.990	2.463	751	392	864
13	9	5	12	9	4	1031.175	328.990	1.373	730	382	850
13	10	4	14	10	5	1053.856	387.855	1.072	714	376	830
13	10	4	13	10	3	1042.096	387.855	2.293	691	366	811
13	10	4	12	10	3	1031.175	387.855	0.812	715	376	836
13	11	3	14	11	4	1053.856	452.753	0.614	701	371	817
13	11	3	13	11	2	1042.096	452.753	2.033	714	376	831
13	11	3	12	11	2	1031.175	452.753	0.414	692	366	810
13	12	2	14	12	3	1053.856	523.635	0.303	677	362	795
13	12	2	13	12	1	1042.096	523.635	1.722	651	353	773
13	12	2	12	12	1	1031.176	523.635	0.153	657	355	777
13	13	1	14	13	2	1053.856	600.447	0.109	646	352	766
13	13	1	13	13	0	1042.096	600.447	1.398	649	353	767
14	0	14	15	0	15	1054.397	87.148	9.905	789	428	930
14	0	14	13	0	13	1030.586	87.148	9.030	789	427	933
14	1	13	15	1	14	1054.969	93.666	9.577	775	421	907
14	1	13	14	1	14	1036.854	93.666	0.091	762	411	895
14	1	13	13	1	12	1030.066	93.666	8.716	779	421	914
14	2	12	15	2	13	1054.927	101.576	9.106	808	440	953
14	2	12	14	2	13	1041.064	101.576	0.316	801	435	942
14	2	12	13	2	11	1030.140	101.576	8.269	809	440	956
14	3	11	15	3	12	1054.749	116.549	8.280	792	434	929
14	3	11	14	3	12	1042.040	116.549	0.698	774	423	912
14	3	11	13	3	10	1030.294	116.549	7.497	794	435	935
14	4	10	15	4	11	1054.715	138.357	7.217	808	447	962
14	4	10	14	4	11	1042.094	138.357	1.127	810	447	962
14	4	10	13	4	9	1030.320	138.357	6.500	810	446	966
14	5	9	15	5	10	1054.706	166.459	6.035	804	439	955
14	5	9	14	5	10	1042.096	166.459	1.541	790	429	937
14	5	9	13	5	8	1030.327	166.459	5.396	807	440	961
14	6	8	15	6	9	1054.701	200.783	4.837	808	433	939
14	6	8	14	6	9	1042.096	200.783	1.884	818	440	954
14	6	8	13	6	7	1030.331	200.783	4.283	809	432	942
14	7	7	15	7	8	1054.699	241.296	3.709	782	415	901
14	7	7	14	7	8	1042.096	241.296	2.112	767	405	887
14	7	7	13	7	6	1030.333	241.296	3.240	785	414	907
14	8	6	15	8	7	1054.698	287.964	2.713	758	399	872
14	8	6	14	8	7	1042.096	287.964	2.206	771	405	887
14	8	6	13	8	5	1030.334	287.964	2.326	758	397	874
14	9	5	15	9	6	1054.697	340.750	1.884	736	386	847
14	9	5	14	9	6	1042.096	340.750	2.167	723	380	836
14	9	5	13	9	4	1030.335	340.750	1.573	738	386	851
14	10	4	15	10	5	1054.696	399.615	1.233	718	378	828
14	10	4	14	10	5	1042.096	399.615	2.018	728	383	839
14	10	4	13	10	3	1030.335	399.615	0.990	714	376	830
14	11	3	15	11	4	1054.696	464.513	0.751	699	371	811
14	11	3	14	11	4	1042.096	464.513	1.788	683	364	799
14	11	3	13	11	2	1030.336	464.513	0.567	701	371	817

14	12	2	15	12	3	1054.696	535.395	0.417	687	366	801
14	12	2	14	12	3	1042.096	535.395	1.515	696	370	811
14	12	2	13	12	1	1030.336	535.395	0.280	677	362	795
14	13	1	15	13	2	1054.695	612.207	0.199	664	358	782
14	13	1	14	13	2	1042.096	612.207	1.230	640	351	763
14	13	1	13	13	0	1030.336	612.207	0.100	646	352	766
14	14	0	15	14	1	1054.695	694.889	0.069	635	350	757
14	14	0	14	14	1	1042.096	694.889	0.950	637	350	757
15	1	15	16	1	16	1055.042	100.570	9.892	767	417	894
15	1	15	15	1	14	1048.065	100.570	0.084	782	426	911
15	1	15	14	1	14	1029.950	100.570	9.042	770	417	901
15	2	14	16	2	15	1055.462	113.084	9.211	758	412	886
15	2	14	15	2	13	1043.420	113.084	0.276	771	419	907
15	2	14	14	2	13	1029.556	113.084	8.399	763	414	894
15	3	13	16	3	14	1055.564	129.118	8.364	784	433	920
15	3	13	15	3	12	1042.179	129.118	0.612	802	442	940
15	3	13	14	3	12	1029.471	129.118	7.603	786	432	925
15	4	12	16	4	13	1055.557	150.973	7.319	776	426	919
15	4	12	15	4	11	1042.098	150.973	0.991	778	427	925
15	4	12	14	4	11	1029.478	150.973	6.625	781	427	927
15	5	11	16	5	12	1055.548	179.069	6.156	803	439	950
15	5	11	15	5	10	1042.096	179.069	1.357	817	449	969
15	5	11	14	5	10	1029.486	179.069	5.540	804	439	954
15	6	10	16	6	11	1055.542	213.389	4.973	795	428	925
15	6	10	15	6	9	1042.096	213.389	1.658	786	422	914
15	6	10	14	6	9	1029.490	213.389	4.441	799	429	931
15	7	9	16	7	10	1055.539	253.899	3.853	780	415	897
15	7	9	15	7	8	1042.096	253.899	1.859	794	422	913
15	7	9	14	7	8	1029.493	253.899	3.405	782	415	901
15	8	8	16	8	9	1055.538	300.565	2.857	755	398	865
15	8	8	15	8	7	1042.096	300.565	1.942	743	391	855
15	8	8	14	8	7	1029.494	300.565	2.490	758	399	872
15	9	7	16	9	8	1055.536	353.351	2.022	735	387	842
15	9	7	15	9	6	1042.096	353.351	1.908	746	392	854
15	9	7	14	9	6	1029.495	353.351	1.729	736	386	847
15	10	6	16	10	7	1055.535	412.216	1.359	716	378	823
15	10	6	15	10	5	1042.096	412.216	1.776	705	373	814
15	10	6	14	10	5	1029.496	412.216	1.132	718	378	828
15	11	5	16	11	6	1055.535	477.113	0.861	700	372	807
15	11	5	15	11	4	1042.096	477.113	1.575	709	375	816
15	11	5	14	11	4	1029.496	477.113	0.690	699	371	811
15	12	4	16	12	5	1055.535	547.995	0.509	684	366	794
15	12	4	15	12	3	1042.096	547.995	1.334	673	362	787
15	12	4	14	12	3	1029.496	547.995	0.382	587	366	801
15	13	3	16	13	4	1055.535	624.806	0.273	673	363	787
15	13	3	15	13	2	1042.096	624.806	1.083	681	365	795
15	13	3	14	13	2	1029.497	624.806	0.183	664	358	782
15	14	2	16	14	3	1055.535	707.489	0.127	652	356	771
15	14	2	15	14	1	1042.096	707.489	0.845	631	349	754
15	14	2	14	14	1	1029.497	707.489	0.064	635	350	757
15	15	1	16	15	2	1055.535	795.979	0.043	626	348	749
15	15	1	15	15	0	1042.096	795.979	0.634	628	348	749
16	0	16	17	0	17	1055.972	112.540	9.952	783	427	919
16	0	16	15	0	15	1029.006	112.540	9.120	785	427	924

16	1	15	17	1	16	1056.646	120.253	9.577	768	420	896
16	1	15	16	1	16	1035.359	120.253	0.072	755	411	883
16	1	15	15	1	14	1028.382	120.253	8.762	772	421	901
16	2	14	17	2	15	1056.680	128.115	9.140	802	440	943
16	2	14	16	2	15	1040.431	128.115	0.236	792	433	930
16	2	14	15	2	13	1028.388	128.115	8.348	804	440	947
16	3	13	17	3	14	1056.458	142.708	8.368	789	435	923
16	3	13	16	3	14	1041.974	142.708	0.536	771	424	904
16	3	13	15	3	12	1028.590	142.708	7.630	791	435	926
16	4	12	17	4	13	1056.403	164.439	7.351	803	447	951
16	4	12	16	4	13	1042.092	164.439	0.872	802	446	949
16	4	12	15	4	11	1028.633	164.439	6.680	805	447	955
16	5	11	17	5	12	1056.390	192.521	6.213	800	439	947
16	5	11	16	5	12	1042.096	192.521	1.194	787	429	929
16	5	11	15	5	10	1028.644	192.521	5.620	803	440	951
16	6	10	17	6	11	1056.383	226.835	5.051	803	433	928
16	6	10	16	6	11	1042.096	226.835	1.460	811	438	941
16	6	10	15	6	9	1028.649	226.835	4.540	805	433	933
16	7	9	17	7	10	1056.380	267.343	3.945	776	414	891
16	7	9	16	7	10	1042.096	267.343	1.637	764	407	878
16	7	9	15	7	8	1028.652	267.343	3.517	780	415	897
16	8	8	17	8	9	1056.377	314.007	2.957	752	398	861
16	8	8	16	8	9	1042.096	314.007	1.710	765	404	874
16	8	8	15	8	7	1028.654	314.007	2.608	755	398	865
16	9	7	17	9	8	1056.376	366.792	2.122	731	387	837
16	9	7	16	9	8	1042.096	366.792	1.680	722	382	829
16	9	7	15	9	6	1028.656	366.792	1.846	735	387	842
16	10	6	17	10	7	1056.375	425.655	1.454	714	378	819
16	10	6	16	10	7	1042.096	425.655	1.564	724	382	829
16	10	6	15	10	5	1028.656	425.655	1.241	716	378	823
16	11	5	17	11	6	1056.375	490.552	0.947	697	371	802
16	11	5	16	11	6	1042.096	490.552	1.387	690	368	796
16	11	5	15	11	4	1028.657	490.552	0.786	700	372	807
16	12	4	17	12	5	1056.374	561.434	0.582	684	366	789
16	12	4	16	12	5	1042.096	561.434	1.175	691	369	797
16	12	4	15	12	3	1028.657	561.434	0.464	684	366	794
16	13	3	17	13	4	1056.374	638.245	0.333	670	362	781
16	13	3	16	13	4	1042.096	638.245	0.954	662	359	777
16	13	3	15	13	2	1028.657	638.245	0.250	673	363	787
16	14	2	17	14	3	1056.374	720.927	0.174	660	360	777
16	14	2	16	14	3	1042.096	720.927	0.744	667	362	784
16	14	2	15	14	1	1028.657	720.927	0.116	652	356	771
16	15	1	17	15	2	1056.374	809.418	0.078	641	354	762
16	15	1	16	15	2	1042.096	809.418	0.559	623	347	748
16	15	1	15	15	0	1028.657	809.418	0.039	626	348	749
17	1	17	18	1	18	1056.638	127.261	9.814	756	415	880
17	1	17	17	1	16	1049.638	127.261	0.068	772	424	898
17	1	17	16	1	16	1028.351	127.261	9.010	761	415	886
17	2	16	18	2	17	1057.111	140.642	9.124	748	410	873
17	2	16	17	2	15	1044.153	140.642	0.207	765	418	897
17	2	16	16	2	15	1027.904	140.642	8.359	754	411	880
17	3	15	18	3	16	1057.249	156.897	8.312	777	431	911
17	3	15	17	3	14	1042.268	156.897	0.470	796	441	930
17	3	15	16	3	14	1027.785	156.897	7.598	780	432	914

17	4	14	18	4	15	1057.245	178.740	7.320	768	425	906
17	4	14	17	4	13	1042.102	178.740	0.766	773	427	915
17	4	14	16	4	13	1027.791	178.740	6.672	773	426	913
17	5	13	18	5	14	1057.232	206.814	6.211	797	438	942
17	5	13	17	5	12	1042.096	206.814	1.051	810	447	959
17	5	13	16	5	12	1027.802	206.814	5.639	799	438	945
17	6	12	18	6	13	1057.224	241.123	5.075	788	427	915
17	6	12	17	6	11	1042.096	241.123	1.285	781	422	906
17	6	12	16	6	11	1027.808	241.123	4.584	792	428	920
17	7	11	18	7	12	1057.220	281.626	3.990	773	414	887
17	7	11	17	7	10	1042.096	281.626	1.441	786	421	902
17	7	11	16	7	10	1027.812	281.626	3.581	776	414	891
17	8	10	18	8	11	1057.217	328.289	3.016	748	397	855
17	8	10	17	8	9	1042.096	328.289	1.505	739	392	846
17	8	10	16	8	9	1027.814	328.289	2.684	752	398	861
17	9	9	18	9	10	1057.216	381.072	2.188	728	386	832
17	9	9	17	9	8	1042.096	381.072	1.479	738	391	843
17	9	9	16	9	8	1027.816	381.072	1.926	731	387	837
17	10	8	18	10	9	1057.214	439.934	1.521	711	378	813
17	10	8	17	10	7	1042.096	439.934	1.377	703	374	807
17	10	8	16	10	7	1027.817	439.934	1.320	714	378	819
17	11	7	18	11	8	1057.214	504.831	1.010	695	371	797
17	11	7	17	11	6	1042.096	504.831	1.221	703	374	805
17	11	7	16	11	6	1027.817	504.831	0.859	697	371	802
17	12	6	18	12	7	1057.213	575.712	0.637	681	366	784
17	12	6	17	12	5	1042.096	575.712	1.034	675	363	780
17	12	6	16	12	5	1027.818	575.712	0.528	684	366	789
17	13	5	18	13	6	1057.213	652.523	0.380	669	362	775
17	13	5	17	13	4	1042.096	652.523	0.840	675	364	781
17	13	5	16	13	4	1027.818	652.523	0.302	670	362	781
17	14	4	18	14	5	1057.213	735.205	0.211	657	359	770
17	14	4	17	14	3	1042.096	735.205	0.655	651	357	768
17	14	4	16	14	3	1027.818	735.205	0.158	660	360	777
17	15	3	18	15	4	1057.213	823.696	0.107	649	357	768
17	15	3	17	15	2	1042.096	823.696	0.492	655	359	774
17	15	3	16	15	2	1027.818	823.696	0.071	641	354	762
18	0	18	19	0	19	1057.541	141.078	9.715	778	426	909
18	0	18	17	0	17	1027.434	141.078	8.933	780	427	913
18	1	17	19	1	18	1058.304	150.184	9.290	762	418	888
18	1	17	18	1	18	1033.715	150.184	0.058	748	410	872
18	1	17	17	1	16	1026.715	150.184	8.529	765	419	891
18	2	16	19	2	17	1058.430	158.158	8.885	794	439	932
18	2	16	18	2	17	1039.595	158.158	0.176	782	431	917
18	2	16	17	2	15	1026.636	158.158	8.145	798	439	937
18	3	15	19	3	16	1058.177	172.289	8.181	785	434	918
18	3	15	18	3	16	1041.857	172.289	0.410	767	425	899
18	3	15	17	3	14	1026.876	172.289	7.492	787	435	921
18	4	14	19	4	15	1058.094	193.899	7.229	798	447	944
18	4	14	18	4	15	1042.087	193.899	0.673	794	444	939
18	4	14	17	4	13	1026.943	193.899	6.605	800	447	947
18	5	13	19	5	14	1058.074	221.951	6.154	794	438	940
18	5	13	18	5	14	1042.096	221.951	0.924	783	429	924
18	5	13	17	5	12	1026.960	221.951	5.605	797	439	944
18	6	12	19	6	13	1058.066	256.251	5.050	797	432	920

18	6	12	18	6	13	1042.096	256.251	1.130	804	437	932
18	6	12	17	6	11	1026.967	256.251	4.580	799	432	924
18	7	11	19	7	12	1058.060	296.750	3.992	769	413	882
18	7	11	18	7	12	1042.096	296.750	1.268	757	407	870
18	7	11	17	7	10	1026.972	296.750	3.601	773	414	887
18	8	10	19	8	11	1058.057	343.410	3.038	744	397	851
18	8	10	18	8	11	1042.096	343.410	1.324	756	402	863
18	8	10	17	8	9	1026.975	343.410	2.722	747	397	855
18	9	9	19	9	10	1058.055	396.191	2.224	724	386	827
18	9	9	18	9	10	1042.096	396.191	1.301	717	381	819
18	9	9	17	9	8	1026.976	396.191	1.975	728	386	832
18	10	8	19	10	9	1058.054	455.053	1.563	708	377	808
18	10	8	18	10	9	1042.096	455.053	1.211	717	381	817
18	10	8	17	10	7	1026.978	455.053	1.373	711	378	813
18	11	7	19	11	8	1058.053	519.948	1.053	692	370	791
18	11	7	18	11	8	1042.096	519.948	1.074	686	368	787
18	11	7	17	11	6	1026.978	519.948	0.911	695	371	797
18	12	6	19	12	7	1058.052	590.829	0.678	678	366	778
18	12	6	18	12	7	1042.095	590.829	0.910	685	368	785
18	12	6	17	12	5	1026.979	590.829	0.575	681	366	784
18	13	5	19	13	6	1058.052	667.640	0.415	666	362	770
18	13	5	18	13	6	1042.096	667.640	0.739	661	360	768
18	13	5	17	13	4	1026.979	667.640	0.343	669	362	775
18	14	4	19	14	5	1058.052	750.322	0.240	655	359	764
18	14	4	18	14	5	1042.096	750.322	0.576	661	360	770
18	14	4	17	14	3	1026.979	750.322	0.190	657	359	770
18	15	3	19	15	4	1058.052	838.813	0.129	646	357	761
18	15	3	18	15	4	1042.096	838.813	0.433	642	355	760
18	15	3	17	15	2	1026.979	838.813	0.096	649	357	768
19	1	19	20	1	20	1058.230	157.142	9.468	746	412	868
19	1	19	19	1	18	1051.346	157.142	0.055	763	421	887
19	1	19	18	1	18	1026.757	157.142	8.716	750	413	873
19	2	18	20	2	19	1058.752	171.494	8.777	738	407	859
19	2	18	19	2	17	1045.094	171.494	0.155	757	417	886
19	2	18	18	2	17	1026.259	171.494	8.065	743	409	866
19	3	17	20	3	18	1058.932	188.045	8.010	771	429	905
19	3	17	19	3	16	1042.421	188.045	0.358	789	439	924
19	3	17	18	3	16	1026.101	188.045	7.348	773	430	907
19	4	16	20	4	17	1058.934	209.883	7.086	760	423	895
19	4	16	19	4	15	1042.110	209.883	0.590	768	427	907
19	4	16	18	4	15	1026.102	209.883	6.486	764	424	901
19	5	15	20	5	16	1058.917	237.929	6.049	790	436	934
19	5	15	19	5	14	1042.096	237.929	0.811	803	445	951
19	5	15	18	5	14	1026.117	237.929	5.522	793	436	937
19	6	14	20	6	15	1058.907	272.221	4.981	781	426	907
19	6	14	19	6	13	1042.096	272.221	0.993	777	421	898
19	6	14	18	6	13	1026.126	272.221	4.531	785	427	911
19	7	13	20	7	14	1058.901	312.715	3.955	766	413	878
19	7	13	19	7	12	1042.096	312.715	1.114	779	419	892
19	7	13	18	7	12	1026.132	312.715	3.582	769	413	882
19	8	12	20	8	13	1058.897	359.371	3.027	741	396	846
19	8	12	19	8	11	1042.096	359.371	1.163	733	391	838
19	8	12	18	8	11	1026.135	359.371	2.726	745	397	851
19	9	11	20	9	12	1058.895	412.150	2.231	722	385	822

19	9	11	19	9	10	1042.096	412.150	1.143	731	389	832
19	9	11	18	9	10	1026.137	412.150	1.996	725	386	827
19	10	10	20	10	11	1058.893	471.010	1.582	704	376	803
19	10	10	19	10	9	1042.096	471.010	1.065	697	373	797
19	10	10	18	10	9	1026.138	471.010	1.403	708	377	808
19	11	9	20	11	10	1058.892	535.905	1.078	689	370	786
19	11	9	19	11	8	1042.096	535.905	0.944	696	373	794
19	11	9	18	11	8	1026.139	535.905	0.945	692	370	791
19	12	8	20	12	9	1058.891	606.785	0.704	675	365	773
19	12	8	19	12	7	1042.096	606.785	0.799	670	363	770
19	12	8	18	12	7	1026.140	606.785	0.608	678	366	778
19	13	7	20	13	8	1058.890	683.596	0.439	663	361	765
19	13	7	19	13	6	1042.096	683.596	0.649	669	363	770
19	13	7	18	13	6	1026.140	683.596	0.372	666	362	770
19	14	6	20	14	7	1058.890	766.278	0.261	652	358	759
19	14	6	19	14	5	1042.096	766.278	0.506	648	357	757
19	14	6	18	14	5	1026.140	766.278	0.215	655	359	764
19	15	5	20	15	6	1058.890	854.768	0.146	643	356	755
19	15	5	19	15	4	1042.096	854.768	0.380	648	357	760
19	15	5	18	15	4	1026.140	854.768	0.116	646	357	761
20	0	20	21	0	21	1059.106	172.751	9.239	771	425	899
20	0	20	19	0	19	1025.868	172.751	8.513	774	425	903
20	1	19	21	1	20	1059.942	183.422	8.770	756	417	881
20	1	19	20	1	20	1031.950	183.422	0.046	741	408	864
20	1	19	19	1	18	1025.066	183.422	8.068	759	418	885
20	2	18	21	2	19	1060.173	191.699	8.393	787	439	922
20	2	18	20	2	19	1038.547	191.699	0.130	772	428	904
20	2	18	19	2	17	1024.889	191.699	7.711	790	439	925
20	3	17	21	3	18	1059.910	205.317	7.767	780	433	913
20	3	17	20	3	18	1041.660	205.317	0.310	763	424	895
20	3	17	19	3	16	1025.150	205.317	7.131	783	434	916
20	4	16	21	4	17	1059.789	226.743	6.894	795	447	939
20	4	16	20	4	17	1042.075	226.743	0.516	789	442	930
20	4	16	19	4	15	1025.250	226.743	6.320	796	446	940
20	5	15	21	5	16	1059.760	254.751	5.900	788	437	933
20	5	15	20	5	16	1042.095	254.751	0.711	777	428	918
20	5	15	19	5	14	1025.274	254.751	5.397	791	438	937
20	6	14	21	6	15	1059.748	289.032	4.873	792	431	914
20	6	14	20	6	15	1042.096	289.032	0.871	798	435	923
20	6	14	19	6	13	1025.285	289.032	4.444	794	431	916
20	7	13	21	7	14	1059.741	329.520	3.884	764	412	875
20	7	13	20	7	14	1042.096	329.520	0.977	753	406	863
20	7	13	19	7	12	1025.291	329.520	3.529	767	413	878
20	8	12	21	8	13	1059.737	376.172	2.987	738	396	843
20	8	12	20	8	13	1042.096	376.172	1.021	749	401	854
20	8	12	19	8	11	1025.295	376.172	2.701	741	396	846
20	9	11	21	9	12	1059.734	428.949	2.214	718	384	818
20	9	11	20	9	12	1042.096	428.949	1.003	711	380	810
20	9	11	19	9	10	1025.297	428.949	1.991	722	385	822
20	10	10	21	10	11	1059.732	487.807	1.581	700	376	798
20	10	10	20	10	11	1042.096	487.807	0.934	710	379	807
20	10	10	19	10	9	1025.299	487.807	1.412	704	376	803
20	11	9	21	11	10	1059.730	552.701	1.087	684	369	782
20	11	9	20	11	10	1042.096	552.701	0.828	679	367	777

20	11	9	19	11	8	1025.300	552.701	0.962	689	370	786
20	12	8	21	12	9	1059.729	623.580	0.718	671	364	769
20	12	8	20	12	9	1042.096	623.580	0.702	678	366	775
20	12	8	19	12	7	1025.301	623.580	0.628	675	365	773
20	13	7	21	13	8	1059.729	700.390	0.455	659	360	760
20	13	7	20	13	8	1042.096	700.390	0.570	655	359	758
20	13	7	19	13	6	1025.302	700.390	0.392	663	361	765
20	14	6	21	14	7	1059.729	783.072	0.276	648	357	754
20	14	6	20	14	7	1042.096	783.072	0.444	654	359	759
20	14	6	19	14	5	1025.302	783.072	0.233	652	358	759
20	15	5	21	15	6	1059.729	871.562	0.159	640	355	750
20	15	5	20	15	6	1042.096	871.562	0.334	637	354	749
20	15	5	19	15	4	1025.302	871.562	0.131	643	356	755
21	1	21	22	1	22	1059.818	190.205	8.905	736	409	857
21	1	21	21	1	20	1053.160	190.205	0.045	755	418	878
21	1	21	20	1	20	1025.167	190.205	8.212	741	410	861
21	2	20	22	2	21	1060.386	205.625	8.223	729	404	849
21	2	20	21	2	19	1046.247	205.625	0.115	751	416	877
21	2	20	20	2	19	1024.622	205.625	7.570	734	406	854
21	3	19	22	3	20	1060.612	222.559	7.509	764	427	901
21	3	19	21	3	18	1042.668	222.559	0.270	782	437	919
21	3	19	20	3	18	1024.419	222.559	6.902	767	428	902
21	4	18	22	4	19	1060.625	244.405	6.663	754	422	888
21	4	18	21	4	17	1042.126	244.405	0.451	765	427	902
21	4	18	20	4	17	1024.412	244.405	6.116	758	423	891
21	5	17	22	5	18	1060.604	272.415	5.714	783	434	927
21	5	17	21	5	16	1042.097	272.415	0.622	796	443	944
21	5	17	20	5	16	1024.432	272.415	5.234	786	435	930
21	6	16	22	6	17	1060.590	306.684	4.732	775	424	901
21	6	16	21	6	15	1042.095	306.684	0.762	772	421	893
21	6	16	20	6	15	1024.444	306.684	4.323	779	425	904
21	7	15	22	7	16	1060.582	347.165	3.784	759	412	871
21	7	15	21	7	14	1042.096	347.165	0.856	772	417	884
21	7	15	20	7	14	1024.451	347.165	3.446	762	412	874
21	8	14	22	8	15	1060.577	393.813	2.921	734	395	838
21	8	14	21	8	13	1042.096	393.813	0.894	727	390	830
21	8	14	20	8	13	1024.455	393.813	2.650	739	396	843
21	9	13	22	9	14	1060.573	446.587	2.176	714	383	814
21	9	13	21	9	12	1042.096	446.587	0.879	724	387	823
21	9	13	20	9	12	1024.458	446.587	1.965	718	384	818
21	10	12	22	10	13	1060.571	505.443	1.563	696	375	794
21	10	12	21	10	11	1042.096	505.443	0.818	690	372	788
21	10	12	20	10	11	1024.460	505.443	1.403	700	376	798
21	11	11	22	11	12	1060.569	570.336	1.083	681	368	778
21	11	11	21	11	10	1042.096	570.336	0.725	688	371	785
21	11	11	20	11	10	1024.461	570.336	0.965	684	369	782
21	12	10	22	12	11	1060.568	641.214	0.722	667	363	765
21	12	10	21	12	9	1042.096	641.214	0.615	663	362	762
21	12	10	20	12	9	1024.462	641.214	0.637	671	364	769
21	13	9	22	13	10	1060.567	718.023	0.463	656	359	756
21	13	9	21	13	8	1042.096	718.023	0.499	662	361	760
21	13	9	20	13	8	1024.463	718.023	0.404	659	360	760
21	14	8	22	14	9	1060.567	800.705	0.285	645	357	749
21	14	8	21	14	7	1042.096	800.705	0.389	642	356	748

21	14	8	20	14	7	1024.463	800.705	0.245	648	357	754
21	15	7	22	15	8	1060.567	889.195	0.167	637	355	745
21	15	7	21	15	6	1042.096	889.195	0.292	641	356	749
21	15	7	20	15	6	1024.463	889.195	0.141	640	355	750
22	0	22	23	0	23	1060.671	207.553	8.577	762	423	888
22	0	22	21	0	21	1024.303	207.553	7.913	766	424	893
22	1	21	23	1	22	1061.559	219.927	8.074	751	416	875
22	1	21	22	1	22	1030.096	219.927	0.037	735	407	857
22	1	21	21	1	20	1023.438	219.927	7.437	754	417	878
22	2	20	23	2	21	1061.904	228.721	7.721	780	438	915
22	2	20	22	2	21	1037.290	228.721	0.096	764	426	894
22	2	20	21	2	19	1023.152	228.721	7.102	783	438	918
22	3	19	23	3	20	1061.655	241.816	7.177	774	431	908
22	3	19	22	3	20	1041.354	241.816	0.232	758	423	892
22	3	19	21	3	18	1023.411	241.816	6.599	777	432	911
22	4	18	23	4	19	1061.488	262.978	6.397	793	446	938
22	4	18	22	4	19	1042.053	262.978	0.393	784	440	927
22	4	18	21	4	17	1023.554	262.978	5.875	794	446	938
22	5	17	23	5	18	1061.448	290.924	5.496	782	436	926
22	5	17	22	5	18	1042.094	290.924	0.543	771	427	912
22	5	17	21	5	16	1023.588	290.924	5.040	785	437	930
22	6	16	23	6	17	1061.431	325.178	4.562	788	430	910
22	6	16	22	6	17	1042.096	325.178	0.666	792	433	917
22	6	16	21	6	15	1023.602	325.178	4.174	789	430	911
22	7	15	23	7	16	1061.422	365.651	3.658	757	411	868
22	7	15	22	7	16	1042.096	365.651	0.748	746	406	856
22	7	15	21	7	14	1023.610	365.651	3.338	760	412	872
22	8	14	23	8	15	1061.416	412.294	2.833	732	394	835
22	8	14	22	8	15	1042.096	412.294	0.782	741	399	845
22	8	14	21	8	13	1023.615	412.294	2.577	734	395	838
22	9	13	23	9	14	1061.412	465.064	2.119	711	382	810
22	9	13	22	9	14	1042.096	465.064	0.768	704	379	803
22	9	13	21	9	12	1023.619	465.064	1.920	714	383	814
22	10	12	23	10	13	1061.410	523.918	1.530	694	374	791
22	10	12	22	10	13	1042.096	523.918	0.716	702	377	799
22	10	12	21	10	11	1023.621	523.918	1.379	696	375	794
22	11	11	23	11	12	1061.408	588.809	1.066	678	368	774
22	11	11	22	11	12	1042.096	588.809	0.634	673	366	770
22	11	11	21	11	10	1023.623	588.809	0.955	681	368	778
22	12	10	23	12	11	1061.406	659.686	0.716	665	363	761
22	12	10	22	12	11	1042.096	659.686	0.537	671	365	766
22	12	10	21	12	9	1023.624	659.686	0.637	667	363	765
22	13	9	23	13	10	1061.406	736.495	0.463	653	359	752
22	13	9	22	13	10	1042.096	736.495	0.436	649	358	750
22	13	9	21	13	8	1023.625	736.495	0.408	656	359	756
22	14	8	23	14	9	1061.405	819.176	0.288	642	356	745
22	14	8	22	14	9	1042.095	819.176	0.340	647	357	749
22	14	8	21	14	7	1023.625	819.176	0.251	645	357	749
22	15	7	23	15	8	1061.405	907.666	0.172	633	354	740
22	15	7	22	15	8	1042.096	907.666	0.256	631	353	739
22	15	7	21	15	6	1023.625	907.666	0.148	637	355	745
23	1	23	24	1	24	1061.402	226.441	8.180	727	406	850
23	1	23	23	1	22	1055.045	226.441	0.037	748	416	871
23	1	23	22	1	22	1023.582	226.441	7.549	731	407	853

23	2	22	24	2	23	1062.011	243.019	7.519	720	402	842
23	2	22	23	2	21	1047.605	243.019	0.086	743	415	871
23	2	22	22	2	21	1022.992	243.019	6.928	724	403	845
23	3	21	24	3	22	1062.287	260.429	6.863	759	425	897
23	3	21	23	3	20	1043.042	260.429	0.201	775	434	913
23	3	21	22	3	20	1022.742	260.429	6.315	761	426	898
23	4	20	24	4	21	1062.316	282.308	6.104	750	419	883
23	4	20	23	4	19	1042.157	282.308	0.342	762	426	900
23	4	20	22	4	19	1022.722	282.308	5.610	752	421	885
23	5	19	24	5	20	1062.291	310.273	5.252	776	431	919
23	5	19	23	5	18	1042.098	310.273	0.473	789	440	936
23	5	19	22	5	18	1022.745	310.273	4.820	779	432	923
23	6	18	24	6	19	1062.273	344.513	4.368	771	423	898
23	6	18	23	6	17	1042.096	344.513	0.581	768	420	891
23	6	18	22	6	17	1022.760	344.513	4.001	773	424	899
23	7	17	24	7	18	1062.262	384.977	3.511	754	410	865
23	7	17	23	7	16	1042.096	384.977	0.653	766	416	877
23	7	17	22	7	16	1022.770	384.977	3.208	756	411	867
23	8	16	24	8	17	1062.256	431.614	2.727	729	393	832
23	8	16	23	8	15	1042.096	431.614	0.682	722	389	823
23	8	16	22	8	15	1022.776	431.614	2.485	732	394	835
23	9	15	24	9	16	1062.251	484.380	2.047	709	382	808
23	9	15	23	9	14	1042.096	484.380	0.671	717	386	816
23	9	15	22	9	14	1022.780	484.380	1.859	711	382	810
23	10	14	24	10	15	1062.248	543.232	1.484	691	373	787
23	10	14	23	10	13	1042.096	543.232	0.624	685	371	782
23	10	14	22	10	13	1022.782	543.232	1.342	694	374	791
23	11	13	24	11	14	1062.246	608.121	1.039	675	367	771
23	11	13	23	11	12	1042.096	608.121	0.554	683	369	778
23	11	13	22	11	12	1022.784	608.121	0.935	678	368	774
23	12	12	24	12	13	1062.245	678.997	0.702	662	362	758
23	12	12	23	12	11	1042.096	678.997	0.469	658	360	754
23	12	12	22	12	11	1022.785	678.997	0.628	665	363	761
23	13	11	24	13	12	1062.244	755.805	0.458	651	358	748
23	13	11	23	13	10	1042.096	755.805	0.381	656	359	753
23	13	11	22	13	10	1022.786	755.805	0.406	653	359	752
23	14	10	24	14	11	1062.243	838.485	0.288	639	355	740
23	14	10	23	14	9	1042.096	838.485	0.297	636	354	739
23	14	10	22	14	9	1022.787	838.485	0.253	642	356	745
23	15	9	24	15	10	1062.243	926.975	0.174	631	353	736
23	15	9	23	15	8	1042.096	926.975	0.223	635	354	740
23	15	9	22	15	8	1022.787	926.975	0.151	633	354	740
24	0	24	25	0	25	1062.236	245.486	7.785	755	421	878
24	0	24	23	0	23	1022.738	245.486	7.186	758	422	882
24	1	23	25	1	24	1063.155	259.654	7.264	746	416	867
24	1	23	24	1	24	1028.189	259.654	0.030	729	406	850
24	1	23	23	1	22	1021.832	259.654	6.694	749	416	871
24	2	22	25	2	23	1063.620	269.196	6.930	774	436	910
24	2	22	24	2	23	1035.834	269.196	0.071	757	424	887
24	2	22	23	2	21	1021.428	269.196	6.377	776	437	912
24	3	21	25	3	22	1063.412	281.812	6.468	766	429	900
24	3	21	24	3	22	1040.904	281.812	0.171	753	421	887
24	3	21	23	3	20	1021.659	281.812	5.950	770	430	904
24	4	20	25	4	21	1063.193	302.613	5.786	793	445	939

24	4	20	24	4	21	1042.011	302.613	0.296	781	438	925
24	4	20	23	4	19	1021.852	302.613	5.320	793	445	938
24	5	19	25	5	20	1063.136	330.471	4.988	777	434	920
24	5	19	24	5	20	1042.093	330.471	0.411	766	426	905
24	5	19	23	5	18	1021.900	330.471	4.580	779	435	924
24	6	18	25	6	19	1063.115	364.690	4.155	785	428	908
24	6	18	24	6	19	1042.096	364.690	0.505	788	431	915
24	6	18	23	6	17	1021.919	364.690	3.809	786	429	908
24	7	17	25	7	18	1063.103	405.143	3.347	754	410	865
24	7	17	24	7	18	1042.096	405.143	0.568	743	404	853
24	7	17	23	7	16	1021.929	405.143	3.062	756	411	867
24	8	16	25	8	17	1063.095	451.774	2.606	727	393	830
24	8	16	24	8	17	1042.096	451.774	0.594	736	398	840
24	8	16	23	8	15	1021.936	451.774	2.379	729	393	832
24	9	15	25	9	16	1063.090	504.536	1.962	706	381	805
24	9	15	24	9	16	1042.096	504.536	0.584	699	378	798
24	9	15	23	9	14	1021.940	504.536	1.786	709	382	808
24	10	14	25	10	15	1063.087	563.384	1.428	688	372	784
24	10	14	24	10	15	1042.096	563.384	0.544	696	375	792
24	10	14	23	10	13	1021.944	563.384	1.295	691	373	787
24	11	13	25	11	14	1063.084	628.271	1.004	672	366	768
24	11	13	24	11	14	1042.096	628.271	0.482	668	364	763
24	11	13	23	11	12	1021.946	628.271	0.907	676	367	771
24	12	12	25	12	13	1063.083	699.146	0.682	659	361	754
24	12	12	24	12	13	1042.096	699.146	0.408	665	363	760
24	12	12	23	12	11	1021.947	699.146	0.613	662	362	758
24	13	11	25	13	12	1063.082	775.953	0.447	647	357	744
24	13	11	24	13	12	1042.096	775.953	0.332	644	356	742
24	13	11	23	13	10	1021.948	775.953	0.399	651	358	748
24	14	10	25	14	11	1063.081	858.632	0.283	636	354	736
24	14	10	24	14	11	1042.096	858.632	0.259	641	356	741
24	14	10	23	14	9	1021.949	858.632	0.251	639	355	740
24	15	9	25	15	10	1063.080	947.121	0.173	627	352	731
24	15	9	24	15	10	1042.096	947.121	0.194	625	352	730
24	15	9	23	15	8	1021.949	947.121	0.152	631	353	736
25	1	25	26	1	26	1062.982	265.843	7.348	720	403	844
25	1	25	25	1	24	1056.965	265.843	0.030	741	413	864
25	1	25	24	1	24	1022.000	265.843	6.784	723	404	846
25	2	24	26	2	25	1063.629	283.660	6.719	714	398	837
25	2	24	25	2	23	1049.156	283.660	0.064	738	414	867
25	2	24	24	2	23	1021.371	283.660	6.193	717	400	840
25	3	23	26	3	24	1063.957	301.647	6.125	752	422	892
25	3	23	25	3	22	1043.577	301.647	0.147	768	431	907
25	3	23	24	3	22	1021.069	301.647	5.638	755	423	894
25	4	22	26	4	23	1064.007	323.594	5.457	746	418	882
25	4	22	25	4	21	1042.212	323.594	0.256	760	426	901
25	4	22	24	4	21	1021.031	323.594	5.018	748	419	883
25	5	21	26	5	22	1063.979	351.507	4.708	771	429	911
25	5	21	25	5	20	1042.101	351.507	0.357	783	438	928
25	5	21	24	5	20	1021.057	351.507	4.325	773	430	914
25	6	20	26	6	21	1063.957	385.709	3.928	766	421	896
25	6	20	25	6	19	1042.096	385.709	0.439	765	419	890
25	6	20	24	6	19	1021.077	385.709	3.603	769	422	897
25	7	19	26	7	20	1063.943	426.150	3.170	749	409	861

25	7	19	25	7	18	1042.096	426.150	0.493	761	414	873
25	7	19	24	7	18	1021.089	426.150	2.902	752	410	863
25	8	18	26	8	19	1063.935	472.773	2.474	724	392	827
25	8	18	25	8	17	1042.096	472.773	0.516	717	388	819
25	8	18	24	8	17	1021.097	472.773	2.260	727	393	830
25	9	17	26	9	18	1063.929	525.530	1.868	703	380	803
25	9	17	25	9	16	1042.096	525.530	0.507	711	384	811
25	9	17	24	9	16	1021.102	525.530	1.702	706	381	805
25	10	16	26	10	17	1063.925	584.375	1.363	684	372	782
25	10	16	25	10	15	1042.096	584.375	0.472	679	369	776
25	10	16	24	10	15	1021.105	584.375	1.239	688	372	784
25	11	15	26	11	16	1063.923	649.260	0.962	668	365	766
25	11	15	25	11	14	1042.096	649.260	0.419	676	368	772
25	11	15	24	11	14	1021.107	649.260	0.871	672	366	768
25	12	14	26	12	15	1063.921	720.133	0.657	655	360	752
25	12	14	25	12	13	1042.096	720.133	0.355	651	359	748
25	12	14	24	12	13	1021.109	720.133	0.592	659	361	754
25	13	13	26	13	14	1063.919	796.938	0.433	643	357	741
25	13	13	25	13	12	1042.096	796.938	0.288	649	358	746
25	13	13	24	13	12	1021.110	796.938	0.388	647	357	744
25	14	12	26	14	13	1063.918	879.617	0.276	632	354	733
25	14	12	25	14	11	1042.096	879.617	0.225	630	353	732
25	14	12	24	14	11	1021.111	879.617	0.246	636	354	738
25	15	11	26	15	12	1063.918	968.106	0.169	623	352	729
25	15	11	25	15	10	1042.096	968.106	0.169	628	353	733
25	15	11	24	15	10	1021.112	968.106	0.150	627	352	733
26	0	26	27	0	27	1063.802	286.549	6.916	747	417	871
26	0	26	25	0	25	1021.173	286.549	6.384	751	419	874
26	1	25	27	1	26	1064.732	302.562	6.395	741	415	861
26	1	25	26	1	26	1026.263	302.562	0.024	723	405	845
26	1	25	25	1	24	1020.246	302.562	5.893	744	415	864
26	2	24	27	2	25	1065.318	313.095	6.078	769	436	907
26	2	24	26	2	25	1034.194	313.095	0.052	751	422	882
26	2	24	25	2	23	1019.721	313.095	5.592	771	436	908
26	3	23	27	3	24	1065.178	325.327	5.692	760	428	892
26	3	23	26	3	24	1040.277	325.327	0.123	747	419	881
26	3	23	25	3	22	1019.897	325.327	5.235	764	429	896
26	4	22	27	4	23	1064.905	345.662	5.111	792	445	938
26	4	22	26	4	23	1041.939	345.662	0.220	779	437	925
26	4	22	25	4	21	1020.144	345.662	4.700	792	445	938
26	5	21	27	5	22	1064.827	373.397	4.418	775	433	916
26	5	21	26	5	22	1042.089	373.397	0.308	763	425	900
26	5	21	25	5	20	1020.210	373.397	4.058	775	434	918
26	6	20	27	6	21	1064.799	407.570	3.691	780	426	907
26	6	20	26	6	21	1042.096	407.570	0.380	783	429	912
26	6	20	25	6	19	1020.235	407.570	3.387	782	427	907
26	7	19	27	7	20	1064.784	447.997	2.983	750	410	862
26	7	19	26	7	20	1042.096	447.997	0.427	739	404	851
26	7	19	25	7	18	1020.249	447.997	2.733	752	410	863
26	8	18	27	8	19	1064.774	494.612	2.333	722	392	826
26	8	18	26	8	19	1042.096	494.612	0.447	730	396	835
26	8	18	25	8	17	1020.257	494.612	2.133	724	392	828
26	9	17	27	9	18	1064.768	547.364	1.765	700	379	801
26	9	17	26	9	18	1042.096	547.364	0.439	693	376	794

26	9	17	25	9	16	1020.263	547.364	1.611	703	380	803
26	10	16	27	10	17	1064.764	606.205	1.292	681	371	780
26	10	16	26	10	17	1042.096	606.205	0.409	689	374	787
26	10	16	25	10	15	1020.267	606.205	1.176	684	372	782
26	11	15	27	11	16	1064.760	671.086	0.915	666	365	764
26	11	15	26	11	16	1042.096	671.086	0.363	661	363	759
26	11	15	25	11	14	1020.269	671.086	0.830	668	365	766
26	12	14	27	12	15	1064.758	741.957	0.627	652	360	749
26	12	14	26	12	15	1042.096	741.957	0.307	658	362	754
26	12	14	25	12	13	1020.271	741.957	0.566	655	360	752
26	13	13	27	13	14	1064.757	818.761	0.415	640	356	738
26	13	13	26	13	14	1042.096	818.761	0.250	636	355	736
26	13	13	25	13	12	1020.273	818.761	0.373	643	357	741
26	14	12	27	14	13	1064.756	901.440	0.266	629	353	731
26	14	12	26	14	13	1042.096	901.440	0.195	633	354	734
26	14	12	25	14	11	1020.273	901.440	0.238	632	354	733
26	15	11	27	15	12	1064.755	989.928	0.164	620	351	725
26	15	11	26	15	12	1042.096	989.928	0.146	618	351	723
26	15	11	25	15	10	1020.274	989.928	0.146	623	352	728
27	1	27	28	1	28	1064.560	308.405	6.463	712	399	838
27	1	27	27	1	26	1058.889	308.405	0.025	735	411	857
27	1	27	26	1	26	1020.421	308.405	5.965	716	401	840
27	2	26	28	2	27	1065.239	327.532	5.876	707	396	833
27	2	26	27	2	25	1050.881	327.532	0.048	734	413	864
27	2	26	26	2	25	1019.757	327.532	5.415	711	397	835
27	3	25	28	3	26	1065.620	346.201	5.345	748	420	889
27	3	25	27	3	24	1044.303	346.201	0.106	761	429	900
27	3	25	26	3	24	1019.403	346.201	4.919	749	420	890
27	4	24	28	4	25	1065.697	368.261	4.767	744	416	882
27	4	24	27	4	23	1042.306	368.261	0.189	760	425	901
27	4	24	26	4	23	1019.340	368.261	4.383	745	417	882
27	5	23	28	5	24	1065.669	396.118	4.122	768	428	906
27	5	23	27	5	22	1042.106	396.118	0.266	780	436	924
27	5	23	26	5	22	1019.368	396.118	3.787	769	428	908
27	6	22	28	6	23	1065.641	430.273	3.448	761	419	894
27	6	22	27	6	21	1042.096	430.273	0.328	760	417	890
27	6	22	26	6	21	1019.393	430.273	3.164	764	420	895
27	7	21	28	7	22	1065.625	470.685	2.791	746	408	859
27	7	21	27	7	20	1042.096	470.685	0.369	758	413	870
27	7	21	26	7	20	1019.408	470.685	2.558	747	408	860
27	8	20	28	8	21	1065.614	517.290	2.187	720	391	824
27	8	20	27	8	19	1042.096	517.290	0.386	714	387	816
27	8	20	26	8	19	1019.417	517.290	2.001	722	392	826
27	9	19	28	9	20	1065.607	570.035	1.658	699	379	800
27	9	19	27	9	18	1042.096	570.035	0.380	706	382	807
27	9	19	26	9	18	1019.424	570.035	1.514	700	379	801
27	10	18	28	10	19	1065.602	628.872	1.216	679	370	778
27	10	18	27	10	17	1042.096	628.872	0.354	673	368	772
27	10	18	26	10	17	1019.428	628.872	1.108	681	371	780
27	11	17	28	11	18	1065.598	693.751	0.864	664	364	762
27	11	17	27	11	16	1042.096	693.751	0.314	670	366	768
27	11	17	26	11	16	1019.431	693.751	0.785	666	365	764
27	12	16	28	12	17	1065.596	764.620	0.594	650	359	747
27	12	16	27	12	15	1042.096	764.620	0.266	646	358	743

27	12	16	26	12	15	1019.434	764.620	0.537	652	360	749
27	13	15	28	13	16	1065.594	841.422	0.395	638	355	736
27	13	15	27	13	14	1042.096	841.422	0.216	643	357	740
27	13	15	26	13	14	1019.435	841.422	0.356	640	356	738
27	14	14	28	14	15	1065.593	924.099	0.254	627	352	728
27	14	14	27	14	13	1042.096	924.099	0.168	624	352	726
27	14	14	26	14	13	1019.436	924.099	0.228	629	353	731
27	15	13	28	15	14	1065.592	1012.587	0.158	618	350	721
27	15	13	27	15	12	1042.096	1012.587	0.126	622	351	725
27	15	13	26	15	12	1019.437	1012.587	0.141	620	351	725
28	0	28	29	0	29	1065.369	330.746	6.020	739	414	864
28	0	28	27	0	27	1019.606	330.746	5.554	742	415	867
28	1	27	29	1	28	1066.295	348.617	5.515	737	413	856
28	1	27	28	1	28	1024.348	348.617	0.020	717	403	840
28	1	27	27	1	26	1018.677	348.617	5.080	740	414	859
28	2	26	29	2	27	1066.997	360.382	5.214	765	434	902
28	2	26	28	2	27	1032.389	360.382	0.039	746	420	877
28	2	26	27	2	25	1018.032	360.382	4.795	767	435	904
28	3	25	29	3	26	1066.946	372.375	4.896	755	426	886
28	3	25	28	3	26	1039.446	372.375	0.088	743	418	877
28	3	25	27	3	24	1018.130	372.375	4.500	757	427	889
28	4	24	29	4	25	1066.626	392.138	4.413	789	443	935
28	4	24	28	4	25	1041.820	392.138	0.162	776	435	923
28	4	24	27	4	23	1018.428	392.138	4.056	791	444	936
28	5	23	29	5	24	1066.520	419.706	3.824	774	433	917
28	5	23	28	5	24	1042.082	419.706	0.228	761	424	899
28	5	23	27	5	22	1018.519	419.706	3.513	774	433	916
28	6	22	29	6	23	1066.484	453.819	3.203	775	425	904
28	6	22	28	6	23	1042.095	453.819	0.282	778	427	909
28	6	22	27	6	21	1018.550	453.819	2.939	778	425	905
28	7	21	29	7	22	1066.465	494.214	2.596	748	408	862
28	7	21	28	7	22	1042.096	494.214	0.318	738	404	850
28	7	21	27	7	20	1018.567	494.214	2.380	749	409	862
28	8	20	29	8	21	1066.453	540.808	2.037	719	391	823
28	8	20	28	8	21	1042.096	540.808	0.333	726	395	831
28	8	20	27	8	19	1018.578	540.808	1.864	720	391	824
28	9	19	29	9	20	1066.445	593.546	1.647	698	378	798
28	9	19	28	9	20	1042.096	593.546	0.327	691	375	791
28	9	19	27	9	18	1018.585	593.546	1.413	699	379	800
28	10	18	29	10	19	1066.440	652.378	1.138	678	370	777
28	10	18	28	10	19	1042.096	652.378	0.305	685	372	783
28	10	18	27	10	17	1018.590	652.378	1.037	679	370	778
28	11	17	29	11	18	1066.436	717.253	0.810	662	364	760
28	11	17	28	11	18	1042.096	717.253	0.270	657	362	755
28	11	17	27	11	16	1018.594	717.253	0.737	664	364	762
28	12	16	29	12	17	1066.433	788.119	0.558	649	359	746
28	12	16	28	12	17	1042.096	788.119	0.229	654	360	750
28	12	16	27	12	15	1018.596	788.119	0.506	650	359	747
28	13	15	29	13	16	1066.431	864.920	0.372	636	355	734
28	13	15	28	13	16	1042.096	864.920	0.186	633	354	731
28	13	15	27	13	14	1018.598	864.920	0.336	638	355	736
28	14	14	29	14	15	1066.429	947.596	0.240	625	352	725
28	14	14	28	14	15	1042.096	947.596	0.145	630	353	729
28	14	14	27	14	13	1018.599	947.596	0.216	627	352	728

28	15	13	29	15	14	1066.428	1036.083	0.150	616	350	719
28	15	13	28	15	14	1042.096	1036.083	0.109	614	349	717
28	15	13	27	15	12	1018.600	1036.083	0.135	618	350	721
29	1	29	30	1	30	1066.135	354.120	5.571	706	397	833
29	1	29	29	1	28	1060.792	354.120	0.020	728	409	852
29	1	29	28	1	28	1018.844	354.120	5.138	708	398	835
29	2	28	30	2	29	1066.841	374.620	5.034	703	393	832
29	2	28	29	2	27	1052.758	374.620	0.036	730	411	861
29	2	28	28	2	27	1018.151	374.620	4.635	705	394	832
29	3	27	30	3	28	1067.274	394.077	4.565	745	418	887
29	3	27	29	3	26	1045.244	394.077	0.075	757	426	896
29	3	27	28	3	26	1017.744	394.077	4.199	746	418	887
29	4	26	30	4	27	1067.386	416.308	4.074	742	414	883
29	4	26	29	4	25	1042.456	416.308	0.138	757	424	900
29	4	26	28	4	25	1017.650	416.308	3.743	743	415	883
29	5	25	30	5	26	1067.359	444.109	3.529	766	427	904
29	5	25	29	5	24	1042.116	444.109	0.196	779	435	922
29	5	25	28	5	24	1017.678	444.109	3.241	766	427	904
29	6	24	30	6	25	1067.326	478.207	2.959	756	417	890
29	6	24	29	6	23	1042.096	478.207	0.242	755	416	887
29	6	24	28	6	23	1017.708	478.207	2.715	759	418	892
29	7	23	30	7	24	1067.305	518.583	2.401	744	407	859
29	7	23	29	7	22	1042.096	518.583	0.273	754	412	869
29	7	23	28	7	22	1017.727	518.583	2.201	745	407	858
29	8	22	30	8	23	1067.292	565.165	1.887	717	390	822
29	8	22	29	8	21	1042.096	565.165	0.286	711	386	814
29	8	22	28	8	21	1017.739	565.165	1.727	718	391	823
29	9	21	30	9	22	1067.283	617.895	1.435	696	378	797
29	9	21	29	9	20	1042.096	617.895	0.281	703	381	804
29	9	21	28	9	20	1017.747	617.895	1.312	698	378	798
29	10	20	30	10	21	1067.277	676.722	1.057	675	369	775
29	10	20	29	10	19	1042.096	676.722	0.262	670	367	769
29	10	20	28	10	19	1017.752	676.722	0.964	678	370	777
29	11	19	30	11	20	1067.273	741.593	0.754	660	363	759
29	11	19	29	11	18	1042.096	741.593	0.232	666	365	764
29	11	19	28	11	18	1017.756	741.593	0.687	662	364	760
29	12	18	30	12	19	1067.270	812.457	0.521	647	358	744
29	12	18	29	12	17	1042.096	812.457	0.197	642	357	740
29	12	18	28	12	17	1017.759	812.457	0.473	649	359	746
29	13	17	30	13	18	1067.268	889.255	0.349	634	354	732
29	13	17	29	13	16	1042.096	889.255	0.160	639	355	736
29	13	17	28	13	16	1017.761	889.255	0.316	636	355	734
29	14	16	30	14	17	1067.266	971.930	0.226	624	351	724
29	14	16	29	14	15	1042.096	971.930	0.125	621	351	721
29	14	16	28	14	15	1017.762	971.930	0.204	625	352	725
29	15	15	30	15	16	1067.265	1060.415	0.142	614	349	716
29	15	15	29	15	14	1042.096	1060.415	0.094	618	350	719
29	15	15	28	15	14	1017.763	1060.415	0.127	616	350	719
30	0	30	31	0	31	1066.937	378.076	5.136	732	409	859
30	0	30	29	0	29	1018.039	378.076	4.735	735	411	861
30	1	29	31	1	30	1067.848	397.792	4.664	732	411	853
30	1	29	30	1	30	1022.463	397.792	0.015	713	401	837
30	1	29	29	1	28	1017.120	397.792	4.292	735	412	855
30	2	28	31	2	29	1068.653	411.014	4.380	760	433	897

30	2	28	30	2	29	1030.448	411.014	0.028	742	418	873
30	2	28	29	2	27	1016.364	411.014	4.024	762	433	899
30	3	27	31	3	28	1068.711	422.958	4.119	751	425	885
30	3	27	30	3	28	1038.393	422.958	0.061	740	417	877
30	3	27	29	3	26	1016.363	422.958	3.782	753	425	886
30	4	26	31	4	27	1068.357	442.062	3.728	786	441	933
30	4	26	30	4	27	1041.632	442.062	0.117	772	433	921
30	4	26	29	4	25	1016.702	442.062	3.424	787	442	934
30	5	25	31	5	26	1068.215	469.401	3.238	776	432	921
30	5	25	30	5	26	1042.068	469.401	0.167	762	424	900
30	5	25	29	5	24	1016.825	469.401	2.973	775	433	919
30	6	24	31	6	25	1068.170	503.438	2.718	771	424	900
30	6	24	30	6	25	1042.095	503.438	0.207	773	425	906
30	6	24	29	6	23	1016.865	503.438	2.493	773	424	902
30	7	23	31	7	24	1068.146	543.792	2.208	747	408	863
30	7	23	30	7	24	1042.096	543.792	0.234	736	403	851
30	7	23	29	7	22	1016.886	543.792	2.024	747	408	863
30	8	22	31	8	23	1068.132	590.361	1.737	717	391	822
30	8	22	30	8	23	1042.096	590.361	0.245	723	394	829
30	8	22	29	8	21	1016.900	590.361	1.590	717	391	822
30	9	21	31	9	22	1068.122	643.083	1.324	694	377	797
30	9	21	30	9	22	1042.096	643.083	0.241	687	375	790
30	9	21	29	9	20	1016.908	643.083	1.210	696	378	797
30	10	20	31	10	21	1068.115	701.903	0.977	673	369	775
30	10	20	30	10	21	1042.096	701.903	0.225	680	371	781
30	10	20	29	10	19	1016.915	701.903	0.891	675	369	775
30	11	19	31	11	20	1068.110	766.770	0.698	657	363	758
30	11	19	30	11	20	1042.096	766.770	0.199	653	361	753
30	11	19	29	11	18	1016.919	766.770	0.636	660	363	759
30	12	18	31	12	19	1068.107	837.630	0.483	645	358	743
30	12	18	30	12	19	1042.096	837.630	0.169	649	359	747
30	12	18	29	12	17	1016.922	837.630	0.439	647	358	744
30	13	17	31	13	18	1068.104	914.427	0.324	633	354	731
30	13	17	30	13	18	1042.096	914.427	0.137	629	353	728
30	13	17	29	13	16	1016.924	914.427	0.294	634	354	732
30	14	16	31	14	17	1068.102	997.100	0.211	621	351	723
30	14	16	30	14	17	1042.096	997.100	0.107	626	352	725
30	14	16	29	14	15	1016.926	997.100	0.190	624	351	724
30	15	15	31	15	16	1068.101	1085.584	0.133	612	349	715
30	15	15	30	15	16	1042.096	1085.584	0.080	610	348	713
30	15	15	29	15	14	1016.927	1085.584	0.119	614	349	716
31	1	31	32	1	32	1067.708	402.985	4.709	702	392	828
31	1	31	31	1	30	1062.655	402.985	0.016	723	406	847
31	1	31	30	1	30	1017.270	402.985	4.339	704	394	830
31	2	30	32	2	31	1068.437	424.909	4.227	700	391	830
31	2	30	31	2	29	1054.758	424.909	0.027	727	410	858
31	2	30	30	2	29	1016.552	424.909	3.889	702	392	831
31	3	29	32	3	30	1068.921	445.259	3.820	743	416	887
31	3	29	31	3	28	1046.410	445.259	0.053	753	424	894
31	3	29	30	3	28	1016.093	445.259	3.510	743	417	886
31	4	28	32	4	29	1069.072	467.731	3.408	739	412	882
31	4	28	31	4	27	1042.688	467.731	0.099	754	422	898
31	4	28	30	4	27	1015.963	467.731	3.129	741	413	883
31	5	27	32	5	28	1069.050	495.481	2.957	765	425	904

31	5	27	31	5	26	1042.134	495.481	0.142	779	434	924
31	5	27	30	5	26	1015.987	495.481	2.713	765	426	904
31	6	26	32	6	27	1069.012	529.510	2.484	752	416	886
31	6	26	31	6	25	1042.097	529.510	0.177	752	415	883
31	6	26	30	6	25	1016.023	529.510	2.278	754	416	888
31	7	25	32	7	26	1068.987	569.843	2.020	743	406	861
31	7	25	31	7	24	1042.096	569.843	0.200	754	411	871
31	7	25	30	7	24	1016.046	569.843	1.851	743	406	859
31	8	24	32	8	25	1068.971	616.397	1.591	716	390	821
31	8	24	31	8	23	1042.096	616.397	0.209	709	386	813
31	8	24	30	8	23	1016.060	616.397	1.456	716	390	821
31	9	23	32	9	24	1068.960	669.109	1.214	693	377	796
31	9	23	31	9	22	1042.096	669.109	0.206	699	380	802
31	9	23	30	9	22	1016.070	669.109	1.109	694	377	797
31	10	22	32	10	23	1068.953	727.922	0.897	672	368	774
31	10	22	31	10	21	1042.096	727.922	0.192	666	366	768
31	10	22	30	10	21	1016.077	727.922	0.819	673	369	775
31	11	21	32	11	22	1068.947	792.784	0.642	656	362	757
31	11	21	31	11	20	1042.096	792.784	0.170	661	364	762
31	11	21	30	11	20	1016.082	792.784	0.585	657	363	758
31	12	20	32	12	21	1068.943	863.641	0.446	643	357	743
31	12	20	31	12	19	1042.096	863.641	0.144	638	356	739
31	12	20	30	12	19	1016.085	863.641	0.405	645	358	743
31	13	19	32	13	20	1068.941	940.435	0.300	631	353	731
31	13	19	31	13	18	1042.096	940.435	0.117	635	354	734
31	13	19	30	13	18	1016.088	940.435	0.272	633	354	731
31	14	18	32	14	19	1068.938	1023.106	0.195	620	350	722
31	14	18	31	14	17	1042.096	1023.106	0.091	617	350	719
31	14	18	30	14	17	1016.090	1023.106	0.177	621	351	723
31	15	17	32	15	18	1068.937	1111.589	0.123	611	348	714
31	15	17	31	15	16	1042.096	1111.589	0.069	614	349	716
31	15	17	30	15	16	1016.091	1111.589	0.111	612	349	715
32	0	32	33	0	33	1068.504	428.541	4.299	725	406	855
32	0	32	31	0	31	1016.471	428.541	3.959	728	407	857
32	1	31	33	1	32	1069.397	450.071	3.870	727	409	850
32	1	31	32	1	32	1020.622	450.071	0.012	709	399	833
32	1	31	31	1	30	1015.569	450.071	3.557	730	410	851
32	2	30	33	2	31	1070.286	464.948	3.605	757	430	894
32	2	30	32	2	31	1028.398	464.948	0.021	738	416	871
32	2	30	31	2	29	1014.719	464.948	3.309	759	431	895
32	3	29	33	3	30	1070.466	477.067	3.393	748	423	885
32	3	29	32	3	30	1037.113	477.067	0.042	739	415	877
32	3	29	31	3	28	1014.602	477.067	3.111	750	424	885
32	4	28	33	4	29	1070.100	495.455	3.083	781	440	929
32	4	28	32	4	29	1041.348	495.455	0.083	769	431	918
32	4	28	31	4	27	1014.965	495.455	2.828	783	440	931
32	5	27	33	5	28	1069.914	522.488	2.685	778	432	924
32	5	27	32	5	28	1042.044	522.488	0.121	763	424	903
32	5	27	31	5	26	1015.128	522.488	2.462	777	432	923
32	6	26	33	6	27	1069.856	556.428	2.258	769	423	897
32	6	26	32	6	27	1042.094	556.428	0.150	769	424	901
32	6	26	31	6	25	1015.179	556.428	2.070	770	423	898
32	7	25	33	7	26	1069.827	596.733	1.838	746	407	867
32	7	25	32	7	26	1042.096	596.733	0.170	736	402	854

32	7	25	31	7	24	1015.205	596.733	1.683	747	408	865
32	8	24	33	8	25	1069.810	643.272	1.449	716	391	823
32	8	24	32	8	25	1042.096	643.272	0.178	722	394	830
32	8	24	31	8	23	1015.221	643.272	1.326	717	391	822
32	9	23	33	9	24	1069.798	695.973	1.107	692	377	796
32	9	23	32	9	24	1042.096	695.973	0.175	685	374	790
32	9	23	31	9	22	1015.232	695.973	1.012	693	377	796
32	10	22	33	10	23	1069.790	754.779	0.819	671	368	774
32	10	22	32	10	23	1042.096	754.779	0.163	677	370	780
32	10	22	31	10	21	1015.239	754.779	0.748	672	368	774
32	11	21	33	11	22	1069.784	819.636	0.587	655	362	757
32	11	21	32	11	22	1042.096	819.636	0.145	651	360	752
32	11	21	31	11	20	1015.245	819.636	0.535	656	362	757
32	12	20	33	12	21	1069.780	890.489	0.408	642	357	743
32	12	20	32	12	21	1042.096	890.489	0.123	647	358	746
32	12	20	31	12	19	1015.249	890.489	0.371	643	357	743
32	13	19	33	13	20	1069.776	967.280	0.275	630	353	730
32	13	19	32	13	20	1042.096	967.280	0.100	627	352	727
32	13	19	31	13	18	1015.251	967.280	0.250	631	353	731
32	14	18	33	14	19	1069.774	1049.949	0.180	620	350	721
32	14	18	32	14	19	1042.096	1049.949	0.078	623	351	724
32	14	18	31	14	17	1015.253	1049.949	0.163	620	350	722
32	15	17	33	15	18	1069.772	1138.430	0.114	610	348	713
32	15	17	32	15	18	1042.096	1138.430	0.058	607	347	711
32	15	17	31	15	16	1015.255	1138.430	0.103	611	348	714
33	1	33	34	1	34	1069.279	454.995	3.905	698	390	825
33	1	33	33	1	32	1064.473	454.995	0.012	718	403	844
33	1	33	32	1	32	1015.698	454.995	3.594	699	391	826
33	2	32	34	2	33	1070.025	478.386	3.482	698	389	828
33	2	32	33	2	31	1056.847	478.386	0.020	724	408	857
33	2	32	32	2	31	1014.960	478.386	3.199	699	390	829
33	3	31	34	3	32	1070.559	499.729	3.133	742	415	888
33	3	31	33	3	30	1047.804	499.729	0.037	751	423	894
33	3	31	32	3	30	1014.451	499.729	2.875	742	415	887
33	4	30	34	4	31	1070.754	522.524	2.794	737	411	880
33	4	30	33	4	29	1043.031	522.524	0.070	752	421	895
33	4	30	32	4	29	1014.279	522.524	2.562	738	412	881
33	5	29	34	5	30	1070.742	550.236	2.427	766	424	908
33	5	29	33	5	28	1042.166	550.236	0.102	780	433	926
33	5	29	32	5	28	1014.296	550.236	2.224	766	425	906
33	6	28	34	6	29	1070.698	584.185	2.042	750	415	883
33	6	28	33	6	27	1042.099	584.185	0.127	750	415	880
33	6	28	32	6	27	1014.337	584.185	1.871	751	415	884
33	7	27	34	7	28	1070.668	624.465	1.664	741	405	863
33	7	27	33	7	26	1042.096	624.465	0.144	752	411	874
33	7	27	32	7	26	1014.365	624.465	1.523	742	405	862
33	8	26	34	8	27	1070.649	670.985	1.313	715	390	823
33	8	26	33	8	25	1042.096	670.985	0.151	709	386	815
33	8	26	32	8	25	1014.382	670.985	1.201	715	390	822
33	9	25	34	9	26	1070.636	723.675	1.004	692	377	796
33	9	25	33	9	24	1042.096	723.675	0.149	699	379	802
33	9	25	32	9	24	1014.394	723.675	0.917	692	377	796
33	10	24	34	10	25	1070.627	782.472	0.744	671	368	774
33	10	24	33	10	23	1042.096	782.472	0.139	665	366	768

33	10	24	32	10	23	1014.402	782.472	0.679	671	368	774
33	11	23	34	11	24	1070.620	847.324	0.534	655	361	757
33	11	23	33	11	22	1042.096	847.324	0.123	660	363	762
33	11	23	32	11	22	1014.408	847.324	0.487	655	362	757
33	12	22	34	12	23	1070.615	918.172	0.372	642	356	743
33	12	22	33	12	21	1042.096	918.172	0.104	638	355	739
33	12	22	32	12	21	1014.412	918.172	0.338	642	357	743
33	13	21	34	13	22	1070.612	994.960	0.251	630	353	730
33	13	21	33	13	20	1042.096	994.960	0.085	634	354	733
33	13	21	32	13	20	1014.416	994.960	0.228	630	353	730
33	14	20	34	14	21	1070.610	1077.627	0.164	619	350	721
33	14	20	33	14	19	1042.096	1077.627	0.066	615	349	718
33	14	20	32	14	19	1014.418	1077.627	0.149	620	350	721
33	15	19	34	15	20	1070.608	1166.107	0.104	608	347	713
33	15	19	33	15	18	1042.096	1166.107	0.050	612	348	715
33	15	19	32	15	18	1014.419	1166.107	0.094	610	348	713
34	0	34	35	0	35	1070.071	482.141	3.532	721	402	852
34	0	34	33	0	33	1014.904	482.141	3.248	722	404	853
34	1	33	35	1	34	1070.945	505.448	3.152	722	406	848
34	1	33	34	1	34	1018.827	505.448	0.009	705	396	831
34	1	33	33	1	32	1014.021	505.448	2.894	725	408	849
34	2	32	35	2	33	1071.894	522.134	2.911	756	429	894
34	2	32	34	2	33	1026.277	522.134	0.016	736	414	869
34	2	32	33	2	31	1013.099	522.134	2.668	756	429	894
34	3	31	35	3	32	1072.206	534.679	2.737	746	422	884
34	3	31	34	3	32	1035.609	534.679	0.029	739	415	879
34	3	31	33	3	30	1012.854	534.679	2.505	748	423	885
34	4	30	35	4	31	1071.856	552.340	2.498	780	438	925
34	4	30	34	4	31	1040.938	552.340	0.058	766	429	914
34	4	30	33	4	29	1013.215	552.340	2.287	780	438	926
34	5	29	35	5	30	1071.618	578.976	2.181	778	431	924
34	5	29	34	5	30	1042.003	578.976	0.086	764	423	906
34	5	29	33	5	28	1013.427	578.976	1.998	778	432	925
34	6	28	35	6	29	1071.543	612.792	1.838	769	423	897
34	6	28	34	6	29	1042.092	612.792	0.108	768	423	899
34	6	28	33	6	27	1013.492	612.792	1.682	768	423	896
34	7	27	35	7	28	1071.509	653.037	1.498	746	407	869
34	7	27	34	7	28	1042.096	653.037	0.122	735	401	857
34	7	27	33	7	26	1013.524	653.037	1.371	746	407	868
34	8	26	35	8	27	1071.488	699.538	1.184	717	391	825
34	8	26	34	8	27	1042.096	699.538	0.128	722	393	831
34	8	26	33	8	25	1013.543	699.538	1.082	716	390	824
34	9	25	35	9	26	1071.474	752.214	0.906	691	377	796
34	9	25	34	9	26	1042.096	752.214	0.126	685	374	790
34	9	25	33	9	24	1013.556	752.214	0.827	592	377	796
34	10	24	35	10	25	1071.464	811.003	0.672	670	367	775
34	10	24	34	10	25	1042.096	811.003	0.118	676	369	779
34	10	24	33	10	23	1013.565	811.003	0.613	671	368	774
34	11	23	35	11	24	1071.457	875.848	0.483	654	361	757
34	11	23	34	11	24	1042.096	875.848	0.104	650	360	752
34	11	23	33	11	22	1013.572	875.848	0.440	655	361	757
34	12	22	35	12	23	1071.452	946.692	0.337	641	356	743
34	12	22	34	12	23	1042.096	946.692	0.088	645	357	746
34	12	22	33	12	21	1013.576	946.692	0.306	642	356	743

34	13	21	35	13	22	1071.448	1023.477	0.228	629	352	731
34	13	21	34	13	22	1042.095	1023.477	0.072	625	351	727
34	13	21	33	13	20	1013.580	1023.477	0.207	630	353	730
34	14	20	35	14	21	1071.445	1106.141	0.149	618	349	721
34	14	20	34	14	21	1042.096	1106.141	0.056	621	350	723
34	14	20	33	14	19	1013.582	1106.141	0.135	619	350	721
34	15	19	35	15	20	1071.443	1194.618	0.095	608	347	713
34	15	19	34	15	20	1042.096	1194.618	0.042	605	347	711
34	15	19	33	15	18	1013.584	1194.618	0.086	608	347	713
35	1	35	36	1	36	1070.849	510.147	3.179	695	386	822
35	1	35	35	1	34	1066.246	510.147	0.010	713	400	840
35	1	35	34	1	34	1014.128	510.147	2.921	696	387	823
35	2	34	36	2	35	1071.608	535.037	2.815	696	387	826
35	2	34	35	2	33	1058.991	535.037	0.015	723	407	857
35	2	34	34	2	33	1013.374	535.037	2.582	697	388	827
35	3	33	36	3	34	1072.187	557.469	2.521	742	414	890
35	3	33	35	3	32	1049.416	557.469	0.025	750	421	894
35	3	33	34	3	32	1012.818	557.469	2.310	742	414	888
35	4	32	36	4	33	1072.430	580.679	2.245	735	410	878
35	4	32	35	4	31	1043.517	580.679	0.048	751	420	894
35	4	32	34	4	31	1012.599	580.679	2.056	736	410	879
35	5	31	36	5	32	1072.434	608.374	1.952	767	423	910
35	5	31	35	5	30	1042.219	608.374	0.072	780	432	927
35	5	31	34	5	30	1012.604	608.374	1.787	767	423	909
35	6	30	36	6	31	1072.385	642.233	1.645	750	414	882
35	6	30	35	6	29	1042.102	642.233	0.091	751	414	880
35	6	30	34	6	29	1012.650	642.233	1.505	750	415	882
35	7	29	36	7	30	1072.349	682.449	1.343	739	404	864
35	7	29	35	7	28	1042.096	682.449	0.103	751	410	875
35	7	29	34	7	28	1012.683	682.449	1.228	740	404	864
35	8	28	36	8	29	1072.326	728.930	1.061	716	390	826
35	8	28	35	8	27	1042.096	728.930	0.108	710	387	818
35	8	28	34	8	27	1012.704	728.930	0.970	716	390	824
35	9	27	36	9	28	1072.311	781.592	0.813	691	377	797
35	9	27	35	9	26	1042.096	781.592	0.106	598	379	802
35	9	27	34	9	26	1012.718	781.592	0.742	691	377	796
35	10	26	36	10	27	1072.300	840.371	0.604	669	367	775
35	10	26	35	10	25	1042.096	840.371	0.099	664	365	769
35	10	26	34	10	25	1012.728	840.371	0.551	670	367	775
35	11	25	36	11	26	1072.293	905.209	0.435	653	361	757
35	11	25	35	11	24	1042.096	905.209	0.088	658	362	762
35	11	25	34	11	24	1012.735	905.209	0.396	654	361	757
35	12	24	36	12	25	1072.287	976.048	0.303	640	356	743
35	12	24	35	12	23	1042.096	976.048	0.075	636	355	739
35	12	24	34	12	23	1012.740	976.048	0.276	641	356	743
35	13	23	36	13	24	1072.283	1052.828	0.205	628	352	731
35	13	23	35	13	22	1042.096	1052.828	0.061	632	353	733
35	13	23	34	13	22	1012.744	1052.828	0.187	629	352	731
35	14	22	36	14	23	1072.280	1135.490	0.135	617	349	721
35	14	22	35	14	21	1042.096	1135.490	0.047	614	348	718
35	14	22	34	14	21	1012.747	1135.490	0.122	618	349	721
35	15	21	36	15	22	1072.277	1223.965	0.086	607	347	713
35	15	21	35	15	20	1042.096	1223.965	0.036	610	347	715
35	15	21	34	15	20	1012.749	1223.965	0.078	608	347	713

VIII. APPENDIX B

LISTING OF LINEWIDTHS FOR TYPE B BAND

The format of this listing is the same as used for the tabulation in the Appendix A. The line position and the relative line intensity values refer to the ν_2 fundamental band of ozone. All other spectral parameters listed can be applied to any type B vibrational-rotational band of O_3 . Pure rotational band of ozone is also a type B band, and the linewidth results given here are very much valid for this band.

It is interesting to observe from the tabulation presented in this Appendix that the linewidth values in P-, Q-, and R-branches (i.e., $\Delta J = -1, 0$, and $+1$, respectively) for a given lower state and with $\Delta K_a = +1$ are almost identical. Thus, in the case of self-broadening of O_3 , in the range $11 \leq J \leq 20$ and $K_a \leq 5$, where only the values for R-branch are computed, one may use these $\gamma_{O_3-O_3}^{\circ}$ results for P- and Q-branches also.

Listing of Linewidth Parameters for Type B Band of Ozone

Lower State			Upper State			Line Position in the ν_2 Band (cm^{-1})	Rotational Energy of the Lower State (cm^{-1})	Relative Line Intensity for the ν_2 Band	γ° (in $10^{-4} \text{ cm}^{-1} \text{ atm}^{-1}$) of Ozone Lines Broadened by			
J	K_a	K_c	J	K_a	K_c				O_3	N_2	O_2	Air
									300°K			200°K
0	0	0	1	1	1	704.878	0.0	0.971	1075	703	380	863
1	1	1	2	2	0	712.034	3.948	1.434	1108	697	380	848
2	0	2	3	1	3	706.432	2.519	1.932	1074	685	371	841
2	0	2	2	1	1	704.140	2.519	2.377	1074	706	381	868
2	0	2	1	1	1	702.359	2.519	0.490	1073	701	379	861
2	1	1	3	2	2	712.772	5.729	1.595	1109	697	379	848
2	1	1	2	2	0	710.253	5.729	0.814	1109	694	378	845
2	2	0	3	3	1	719.105	15.052	2.306	1134	660	369	793
3	1	3	4	2	2	713.848	8.022	1.695	1109	691	376	840
3	1	3	3	2	2	710.480	8.022	1.367	1110	697	379	847
3	1	3	2	2	0	707.960	8.022	0.154	1111	715	388	869
3	2	2	4	3	1	719.947	17.572	2.385	1135	680	377	818
3	2	2	3	3	1	716.586	17.572	0.804	1135	678	377	816
3	3	1	4	4	0	726.191	33.228	2.993	1052	623	359	749
4	0	4	5	1	5	707.889	8.391	2.880	1082	683	369	839
4	0	4	4	1	3	704.323	8.391	4.042	1082	706	380	869
4	0	4	3	1	3	700.561	8.391	1.474	1079	685	371	841
4	1	3	5	2	4	714.275	11.785	1.969	1113	699	379	852
4	1	3	4	2	2	710.086	11.785	1.999	1113	699	380	852
4	1	3	3	2	2	706.717	11.785	0.360	1113	699	380	852
4	2	2	5	3	3	720.780	20.940	2.495	1136	682	377	822
4	2	2	4	3	1	716.578	20.940	1.428	1137	682	378	822
4	2	2	3	3	1	713.217	20.940	0.112	1137	685	380	825
4	3	1	5	4	2	727.031	36.589	3.025	1125	652	371	787
4	3	1	4	4	0	722.830	36.589	0.762	1124	646	368	779
4	4	0	5	5	1	733.261	58.489	3.447	1082	598	351	729
5	1	5	6	2	4	715.789	15.351	1.910	1113	686	374	836
5	1	5	5	2	4	710.709	15.351	2.282	1113	686	374	836
5	1	5	4	2	2	706.520	15.351	0.508	1114	691	376	841
5	2	4	6	3	3	721.634	25.130	2.607	1135	681	376	821
5	2	4	5	3	3	716.591	25.130	1.960	1136	682	377	822
5	2	4	4	3	1	712.389	25.130	0.263	1136	684	379	824
5	3	3	6	4	2	727.871	40.791	3.083	1124	659	372	795
5	3	3	5	4	2	722.829	40.791	1.371	1125	658	372	794
5	3	3	4	4	0	718.628	40.791	0.082	1125	657	372	793
5	4	2	6	5	1	734.101	62.690	3.438	1086	634	363	775
5	4	2	5	5	1	729.059	62.690	0.691	1084	624	360	763
5	5	1	6	6	0	740.309	90.820	3.647	1033	586	346	721

6	0	6	7	1	7	709.262	17.597	3.810	1090	683	369	839
6	0	6	6	1	5	704.627	17.597	5.332	1089	709	380	872
6	0	6	5	1	5	698.683	17.597	2.458	1086	683	369	838
6	1	5	7	2	6	715.677	21.294	2.342	1117	702	380	854
6	1	5	6	2	4	709.845	21.294	3.097	1117	703	380	857
6	1	5	5	2	4	704.765	21.294	0.786	1117	702	380	855
6	2	4	7	3	5	722.439	30.209	2.716	1136	682	376	823
6	2	4	6	3	3	716.555	30.209	2.434	1136	682	377	823
6	2	4	5	3	3	711.511	30.209	0.427	1137	683	377	824
6	3	3	7	4	4	728.711	45.834	3.145	1125	661	373	798
6	3	3	6	4	2	722.828	45.834	1.886	1125	660	373	798
6	3	3	5	4	2	717.786	45.834	0.200	1126	661	374	799
6	4	2	7	5	3	734.941	67.732	3.449	1091	644	367	788
6	4	2	6	5	1	729.059	67.732	1.254	1090	641	366	785
6	4	2	5	5	1	724.018	67.732	0.061	1090	637	365	779
6	5	1	7	6	2	741.149	95.861	3.605	1040	626	359	770
6	5	1	6	6	0	735.268	95.861	0.602	1040	613	355	754
6	6	0	7	7	1	747.332	130.199	3.606		580	343	712
7	1	7	8	2	6	717.881	25.929	1.988	1119	687	374	835
7	1	7	7	2	6	711.042	25.929	2.980	1118	683	372	830
7	1	7	6	2	4	705.210	25.929	0.795	1118	687	374	837
7	2	6	8	3	5	723.335	36.042	2.801	1136	680	376	818
7	2	6	7	3	5	716.606	36.042	2.850	1136	681	376	819
7	2	6	6	3	3	710.722	36.042	0.589	1136	681	376	820
7	3	5	8	4	4	729.550	51.718	3.203	1125	662	373	799
7	3	5	7	4	4	722.827	51.718	2.332	1125	662	373	800
7	3	5	6	4	2	716.944	51.718	0.333	1125	662	373	800
7	4	4	8	5	3	735.781	73.615	3.463	1092	648	368	793
7	4	4	7	5	3	729.058	73.615	1.728	1092	648	368	793
7	4	4	6	5	1	723.176	73.615	0.152	1091	647	368	792
7	5	3	8	6	2	741.989	101.743	3.576	1044	640	363	786
7	5	3	7	6	2	735.267	101.743	1.099	1042	636	362	781
7	5	3	6	6	0	729.386	101.743	0.045	1039	628	360	771
7	6	2	8	7	1	748.171	136.081	3.539		623	355	765
7	6	2	7	7	1	741.450	136.081	0.506		610	351	748
7	7	1	8	8	0	754.323	176.601	3.365		574	339	699
8	0	8	9	1	9	710.568	30.112	4.706	1099	683	368	834
8	0	8	8	1	7	705.069	30.112	6.147	1097	711	381	869
8	0	8	7	1	7	696.747	30.112	3.422	1095	682	368	835
8	1	7	9	2	8	716.981	34.251	2.681	1119	703	381	850
8	1	7	8	2	6	709.560	34.251	4.178	1119	705	381	855
8	1	7	7	2	6	702.721	34.251	1.205	1119	703	381	853
8	2	6	9	3	7	724.062	42.880	2.883	1136	682	376	821
8	2	6	8	3	5	716.496	42.880	3.238	1136	683	377	822
8	2	6	7	3	5	709.768	42.880	0.747	1136	683	377	822
8	3	5	9	4	6	730.387	58.446	3.248	1126	662	372	798
8	3	5	8	4	4	722.822	58.446	2.722	1125	662	373	799
8	3	5	7	4	4	716.098	58.446	0.469	1125	663	373	800
8	4	4	9	5	5	736.620	80.339	3.472	1094	650	368	793
8	4	4	8	5	3	729.057	80.339	2.134	1093	650	369	794
8	4	4	7	5	3	722.334	80.339	0.256	1093	650	369	795
8	5	3	9	6	4	742.829	108.466	3.549	1046	646	365	792
8	5	3	8	6	2	735.267	108.466	1.517	1045	643	364	791
8	5	3	7	6	2	728.545	108.466	0.113	1044	642	364	789

8	6	2	9	7	3	749.011	142.802	3.481		637	360	782
8	6	2	8	7	1	741.450	142.802	0.926		633	358	776
8	6	2	7	7	1	734.728	142.802	0.032		624	356	766
8	7	1	9	8	2	755.163	183.322	3.283		616	351	751
8	7	1	8	8	0	747.602	183.322	0.410		599	345	729
8	8	0	9	9	1	761.280	229.994	2.983		566	335	680
9	1	9	10	2	8	720.160	39.750	1.915	1122	688	374	833
9	1	9	9	2	8	711.481	39.750	3.469	1122	681	371	823
9	1	9	8	2	6	704.060	39.750	0.964	1123	688	374	835
9	2	8	10	3	7	725.059	50.301	2.916	1134	678	375	812
9	2	8	9	3	7	716.641	50.301	3.552	1135	679	375	814
9	2	8	8	3	5	709.075	50.301	0.886	1135	679	376	815
9	3	7	10	4	6	731.227	66.012	3.278	1126	662	372	796
9	3	7	9	4	6	722.821	66.012	3.060	1126	662	372	798
9	3	7	8	4	4	715.256	66.012	0.601	1125	662	373	798
9	4	6	10	5	5	737.459	87.904	3.472	1095	651	368	791
9	4	6	9	5	5	729.055	87.904	2.481	1095	651	369	794
9	4	6	8	5	3	721.492	87.904	0.366	1094	651	369	795
9	5	5	10	6	4	743.668	116.029	3.517	1048	648	366	793
9	5	5	9	6	4	735.266	116.029	1.870	1048	648	366	794
9	5	5	8	6	2	727.704	116.029	0.194	1046	647	366	794
9	6	4	10	7	3	749.851	150.365	3.423		645	362	789
9	6	4	9	7	3	741.449	150.365	1.279		643	362	788
9	6	4	8	7	1	733.887	150.365	0.083		640	361	784
9	7	3	10	8	2	756.003	190.884	3.206		636	357	776
9	7	3	9	8	2	747.602	190.884	0.752		626	354	765
9	7	3	8	8	0	740.040	190.884	0.023		612	349	745
9	8	2	10	9	1	762.120	237.556	2.894		604	346	731
9	8	2	9	9	1	753.719	237.556	0.321		590	342	714
9	9	1	10	10	0	768.198	290.345	2.521		579	338	688
10	0	10	11	1	11	711.834	45.900	5.536	1108	679	367	823
10	0	10	10	1	9	705.672	45.900	6.456	1104	709	381	860
10	0	10	9	1	9	694.780	45.900	4.329	1105	680	368	827
10	1	9	11	2	10	718.189	50.642	2.975	1120	700	381	841
10	1	9	10	2	8	709.268	50.642	5.212	1120	704	382	849
10	1	9	9	2	8	700.589	50.642	1.595	1120	702	381	846
10	2	8	11	3	9	725.626	58.980	2.972	1133	681	377	815
10	2	8	10	3	7	716.380	58.980	3.874	1134	682	377	817
10	2	8	9	3	7	707.962	58.980	1.023	1135	682	377	818
10	3	7	11	4	8	732.057	74.431	3.291	1125	661	372	793
10	3	7	10	4	6	722.809	74.431	3.350	1125	662	372	795
10	3	7	9	4	6	714.403	74.431	0.725	1125	662	372	796
10	4	6	11	5	7	738.297	96.310	3.458	1095	651	368	788
10	4	6	10	5	5	729.052	96.310	2.777	1095	652	369	790
10	4	6	9	5	5	720.649	96.310	0.473	1094	652	369	793
10	5	5	11	6	6	744.508	124.433	3.477	1049	649	366	791
10	5	5	10	6	4	735.264	124.433	2.169	1049	649	366	792
10	5	5	9	6	4	726.862	124.433	0.279	1048	649	366	794
10	6	4	11	7	5	750.691	158.767	3.361		648	364	791
10	6	4	10	7	3	741.448	158.767	1.575		647	363	791
10	6	4	9	7	3	733.047	158.767	0.143		646	363	790
10	7	3	11	8	4	756.843	199.286	3.128		643	359	783
10	7	3	10	8	2	747.601	199.286	1.038		641	359	781
10	7	3	9	8	2	739.200	199.286	0.060		634	357	773

10	8	2	11	9	3	762.960	245.957	2.808		626	352	759
10	8	2	10	9	1	753.719	245.957	0.589		619	350	748
10	8	2	9	9	1	745.317	245.957	0.016		609	347	736
10	9	1	11	10	2	769.037	298.746	2.433		584	339	700
10	9	1	10	10	0	759.796	298.746	0.242		587	340	699
10	10	0	11	11	1	775.070	357.612	2.038		552	332	649
11	1	11	12	2	10	722.662	56.804	1.713	1123	687	375	826
11	1	11	11	2	10	712.027	56.804	3.748		678	370	813
11	1	11	10	2	8	703.105	56.804	1.003		688	375	829
11	2	10	12	3	9	726.823	67.902	2.934	1131	675	375	803
11	2	10	11	3	9	716.704	67.902	4.072		675	375	804
11	2	10	10	3	7	707.459	67.902	1.119		676	375	806
11	3	9	12	4	8	732.902	83.676	3.284	1122	659	372	788
11	3	9	11	4	8	722.812	83.676	3.593		660	372	791
11	3	9	10	4	6	713.564	83.676	0.838		661	372	792
11	4	8	12	5	7	739.135	105.558	3.430	1093	650	368	784
11	4	8	11	5	7	729.049	105.558	3.023		651	368	787
11	4	8	10	5	5	719.804	105.558	0.574		651	369	789
11	5	7	12	6	6	745.346	133.677	3.427	1049	648	366	787
11	5	7	11	6	6	735.263	133.677	2.418		649	366	790
11	5	7	10	6	4	726.020	133.677	0.363		649	366	792
11	6	6	12	7	5	751.530	168.010	3.292		649	364	789
11	6	6	11	7	5	741.448	168.010	1.822		649	364	791
11	6	6	10	7	3	732.206	168.010	0.207		649	364	792
11	7	5	12	8	4	757.682	208.528	3.047		647	361	786
11	7	5	11	8	4	747.601	208.528	1.276		645	361	785
11	7	5	10	8	2	738.359	208.528	0.103		645	360	784
11	8	4	12	9	3	763.799	255.199	2.722		640	357	775
11	8	4	11	9	3	753.718	255.199	0.812		631	354	765
11	8	4	10	9	1	744.477	255.199	0.042		624	352	755
11	9	3	12	10	2	769.877	307.987	2.348		623	351	748
11	9	3	11	10	2	759.796	307.987	0.445		595	342	715
11	9	3	10	10	0	750.555	307.987	0.011		595	342	711
11	10	2	12	11	1	775.909	366.853	1.958		583	339	689
11	10	2	11	11	1	765.829	366.853	0.177		555	333	658
11	11	1	12	12	0	781.893	431.752	1.579		580	338	671
12	0	12	13	1	13	713.086	64.925	6.255	1117	673	366	809
12	0	12	12	1	11	706.459	64.925	6.310		704	381	848
12	0	12	11	1	11	692.809	64.925	5.129		675	366	815
12	1	11	13	2	12	719.308	70.454	3.215	1122	694	380	829
12	1	11	12	2	10	709.012	70.454	6.118		700	382	839
12	1	11	11	2	10	698.377	70.454	1.944		697	381	834
12	2	10	13	3	11	727.104	78.537	2.977	1127	677	376	807
12	2	10	12	3	9	716.188	78.537	4.353		680	377	810
12	2	10	11	3	9	706.069	78.537	1.236		680	377	811
12	3	9	13	4	10	733.716	93.795	3.259	1120	658	371	785
12	3	9	12	4	8	722.783	93.795	3.793		659	371	787
12	3	9	11	4	8	712.693	93.795	0.937		660	372	789
12	4	8	13	5	9	739.972	115.648	3.385	1091	648	368	779
12	4	8	12	5	7	729.045	115.648	3.224		649	368	781
12	4	8	11	5	7	718.959	115.648	0.667		650	368	785
12	5	7	13	6	8	746.185	143.763	3.364	1048	646	366	781
12	5	7	12	6	6	735.260	143.763	2.622		647	366	784
12	5	7	11	6	6	725.177	143.763	0.443		648	366	787

12	6	6	13	7	7	752.369	178.094	3.215		648	364	785
12	6	6	12	7	5	741.446	178.094	2.025		648	364	787
12	6	6	11	7	5	731.364	178.094	0.271		649	364	789
12	7	5	13	8	6	758.521	218.610	2.962		648	362	784
12	7	5	12	8	4	747.600	218.610	1.473		648	362	785
12	7	5	11	8	4	737.518	218.610	0.150		647	361	786
12	8	4	13	9	5	764.639	265.281	2.633		643	358	778
12	8	4	12	9	3	753.718	265.281	0.997		644	358	778
12	8	4	11	9	3	743.637	265.281	0.073		636	356	771
12	9	3	13	10	4	770.716	318.069	2.262		626	351	753
12	9	3	12	10	2	759.796	318.069	0.613		635	354	761
12	9	3	11	10	2	749.715	318.069	0.028		609	346	732
12	10	2	13	11	3	776.749	376.934	1.879		603	344	716
12	10	2	12	11	1	765.828	376.934	0.325		611	347	722
12	10	2	11	11	1	755.748	376.934	0.007		592	341	703
12	11	1	13	12	2	782.732	441.833	1.510		567	335	661
12	11	1	12	12	0	771.812	441.833	0.125		600	343	693
12	12	0	13	13	1	788.662	512.715	1.175		597	343	685
13	1	13	14	2	12	725.425	77.081	1.430	1125	685	375	819
13	1	13	13	2	12	712.681	77.081	3.832		671	369	801
13	1	13	12	2	10	702.385	77.081	0.932		686	375	821
13	2	12	14	3	11	728.646	88.833	2.849	1128	669	374	794
13	2	12	13	3	11	716.808	88.833	4.408		669	374	794
13	2	12	12	3	9	705.892	88.833	1.272		671	374	797
13	3	11	14	4	10	734.576	104.711	3.213	1117	654	371	780
13	3	11	13	4	10	722.800	104.711	3.948		656	371	782
13	3	11	12	4	8	711.867	104.711	1.020		657	371	784
13	4	10	14	5	9	740.808	126.580	3.325	1089	646	367	774
13	4	10	13	5	9	729.040	126.580	3.383		648	368	777
13	4	10	12	5	7	718.113	126.580	0.749		648	368	780
13	5	9	14	6	8	747.023	154.690	3.289	1046	644	365	776
13	5	9	13	6	8	735.258	154.690	2.783		646	365	779
13	5	9	12	6	6	724.333	154.690	0.516		647	366	782
13	6	8	14	7	7	753.208	189.018	3.129		645	363	780
13	6	8	13	7	7	741.445	189.018	2.187		647	364	783
13	6	8	12	7	5	730.522	189.018	0.332		648	364	785
13	7	7	14	8	6	759.361	229.533	2.870		647	362	781
13	7	7	13	8	6	747.599	229.533	1.632		648	362	783
13	7	7	12	8	4	736.677	229.533	0.197		648	362	785
13	8	6	14	9	5	765.478	276.202	2.541		646	359	778
13	8	6	13	9	5	753.718	276.202	1.148		645	359	778
13	8	6	12	9	3	742.796	276.202	0.106		646	359	779
13	9	5	14	10	4	771.556	328.990	2.175		640	356	767
13	9	5	13	10	4	759.795	328.990	0.751		627	352	755
13	9	5	12	10	2	748.875	328.990	0.050		636	355	763
13	10	4	14	11	3	777.588	387.855	1.800		623	351	741
13	10	4	13	11	3	765.828	387.855	0.447		594	341	708
13	10	4	12	11	1	754.908	387.855	0.019		602	344	714
13	11	3	14	12	2	783.572	452.753	1.442		618	350	723
13	11	3	13	12	2	771.812	452.753	0.229		555	333	653
13	11	3	12	12	0	760.891	452.753	0.005		594	341	689
13	12	2	14	13	1	789.501	523.635	1.119		579	338	667
13	12	2	13	13	1	777.741	523.635	0.085		564	335	653
13	13	1	14	14	0	795.373	600.447	0.841		593	342	675

14	0	14	15	1	15	714.352	87.148	6.808	1124	663	363	792
14	0	14	14	1	13	707.448	87.148	5.821		696	379	835
14	0	14	13	1	13	690.863	87.148	5.762		667	364	799
14	1	13	15	2	14	720.347	93.666	3.399	1124	687	379	818
14	1	13	14	2	12	708.840	93.666	6.790		694	381	829
14	1	13	13	2	12	696.096	93.666	2.244		690	379	823
14	2	12	15	3	13	728.472	101.576	2.907	1122	673	375	800
14	2	12	14	3	11	715.902	101.576	4.684		676	376	803
14	2	12	13	3	11	704.064	101.576	1.379		675	376	803
14	3	11	15	4	12	735.354	116.549	3.152	1115	654	370	778
14	3	11	14	4	10	722.738	116.549	4.065		655	370	779
14	3	11	13	4	10	710.961	116.549	1.090		656	371	781
14	4	10	15	5	11	741.642	138.357	3.250	1087	643	367	770
14	4	10	14	5	9	729.032	138.357	3.500		644	367	772
14	4	10	13	5	9	717.263	138.357	0.819		646	367	775
14	5	9	15	6	10	747.860	166.459	3.202	1045	641	364	771
14	5	9	14	6	8	735.254	166.459	2.905		642	365	773
14	5	9	13	6	8	723.489	166.459	0.580		644	365	777
14	6	8	15	7	9	754.046	200.783	3.034		642	363	774
14	6	8	14	7	7	741.443	200.783	2.312		644	363	777
14	6	8	13	7	7	729.680	200.783	0.387		646	364	780
14	7	7	15	8	8	760.199	241.296	2.772		645	361	776
14	7	7	14	8	6	747.598	241.296	1.757		646	362	779
14	7	7	13	8	6	735.836	241.296	0.242		647	362	781
14	8	6	15	9	7	766.317	287.964	2.445		645	359	775
14	8	6	14	9	5	753.717	287.964	1.268		646	359	778
14	8	6	13	9	5	741.956	287.964	0.139		645	359	778
14	9	5	15	10	6	772.395	340.750	2.086		638	356	766
14	9	5	14	10	4	759.795	340.750	0.862		642	357	769
14	9	5	13	10	4	748.034	340.750	0.073		631	353	758
14	10	4	15	11	5	778.428	399.615	1.721		620	349	738
14	10	4	14	11	3	765.828	399.615	0.546		636	355	755
14	10	4	13	11	3	754.068	399.615	0.033		610	346	725
14	11	3	15	12	4	784.411	464.513	1.375		603	345	710
14	11	3	14	12	2	771.812	464.513	0.314		643	360	752
14	11	3	13	12	2	760.052	464.513	0.012		595	342	700
14	12	2	15	13	3	790.341	535.395	1.063		629	356	729
14	12	2	14	13	1	777.741	535.395	0.156		632	356	729
14	12	2	13	13	1	765.981	535.395	0.003		622	352	719
14	13	1	15	14	2	796.212	612.207	0.797		591	343	677
14	13	1	14	14	0	783.613	612.207	0.056		604	346	687
14	14	0	15	15	1	802.020	694.889	0.579		592	343	668
15	1	15	16	2	14	728.474	100.570	1.125	1125	680	375	812
15	1	15	15	2	14	713.443	100.570	3.749		664	367	788
15	1	15	14	2	12	701.936	100.570	0.790		682	375	813
15	2	14	16	3	13	730.554	113.084	2.667	1125	663	372	787
15	2	14	15	3	13	716.964	113.084	4.559		662	372	785
15	2	14	14	3	11	704.395	113.084	1.339		666	373	789
15	3	13	16	4	12	736.250	129.118	3.068	1112	648	369	772
15	3	13	15	4	12	722.785	129.118	4.136		650	369	774
15	3	13	14	4	10	710.169	129.118	1.141		651	370	775
15	4	12	16	5	11	742.477	150.973	3.160	1084	640	366	765
15	4	12	15	5	11	729.025	150.973	3.578		642	366	768
15	4	12	14	5	9	716.415	150.973	0.876		643	367	770

15	5	11	16	6	10	748.696	179.069	3.103	1044	637	364	765
15	5	11	15	6	10	735.250	179.069	2.990		640	364	769
15	5	11	14	6	8	722.644	179.069	0.636		641	365	771
15	6	10	16	7	9	754.884	213.389	2.929		639	362	769
15	6	10	15	7	9	741.440	213.389	2.403		641	363	772
15	6	10	14	7	7	728.837	213.389	0.437		643	363	775
15	7	9	16	8	8	761.038	253.899	2.667		642	361	771
15	7	9	15	8	8	747.596	253.899	1.850		644	361	774
15	7	9	14	8	6	734.995	253.899	0.283		645	361	777
15	8	8	16	9	7	767.156	300.565	2.345		643	359	771
15	8	8	15	9	7	753.716	300.565	1.360		644	359	773
15	8	8	14	9	5	741.115	300.565	0.171		646	360	776
15	9	7	16	10	6	773.234	353.351	1.994		641	357	766
15	9	7	15	10	6	759.794	353.351	0.950		638	356	765
15	9	7	14	10	4	747.194	353.351	0.096		642	357	769
15	10	6	16	11	5	779.267	412.216	1.641		634	354	754
15	10	6	15	11	5	765.828	412.216	0.625		617	349	735
15	10	6	14	11	3	753.228	412.216	0.049		634	355	753
15	11	5	16	12	4	785.250	477.113	1.307		621	351	727
15	11	5	15	12	4	771.812	477.113	0.384		584	339	691
15	11	5	14	12	2	759.212	477.113	0.022		629	354	737
15	12	4	16	13	3	791.180	547.995	1.008		612	350	710
15	12	4	15	13	3	777.741	547.995	0.214		586	341	683
15	12	4	14	13	1	765.142	547.995	0.008		589	341	682
15	13	3	16	14	2	797.051	624.806	0.754		631	357	725
15	13	3	15	14	2	783.613	624.806	0.103		590	342	680
15	13	3	14	14	0	771.013	624.806	0.002		604	346	690
15	14	2	16	15	1	802.859	707.489	0.547		585	341	663
15	14	2	15	15	1	789.420	707.489	0.036		578	339	657
15	15	1	16	16	0	808.599	795.979	0.385		578	340	651
16	0	16	17	1	17	715.651	112.540	7.150	1130	651	360	773
16	0	16	16	1	15	708.643	112.540	5.137		687	376	822
16	0	16	15	1	15	688.960	112.540	6.181		656	361	781
16	1	15	17	2	16	721.319	120.253	3.525	1125	679	376	809
16	1	15	16	2	14	708.792	120.253	7.133		687	379	822
16	1	15	15	2	14	693.760	120.253	2.487		682	377	813
16	2	14	17	3	15	729.712	128.115	2.777	1118	667	374	795
16	2	14	16	3	13	715.522	128.115	4.882		670	375	799
16	2	14	15	3	13	701.933	128.115	1.459		670	375	797
16	3	13	17	4	14	736.963	142.708	2.977	1111	648	369	772
16	3	13	16	4	12	722.661	142.708	4.177		649	369	773
16	3	13	15	4	12	709.196	142.708	1.180		651	369	775
16	4	12	17	5	13	743.306	164.439	3.057	1082	637	365	761
16	4	12	16	5	11	729.012	164.439	3.620		638	366	763
16	4	12	15	5	11	715.560	164.439	0.921		640	366	766
16	5	11	17	6	12	749.532	192.521	2.993	1042	634	363	761
16	5	11	16	6	10	735.244	192.521	3.040		636	363	764
16	5	11	15	6	10	721.798	192.521	0.681		638	364	766
16	6	10	17	7	11	755.721	226.835	2.817		635	361	764
16	6	10	16	7	9	741.437	226.835	2.461		637	362	766
16	6	10	15	7	9	727.994	226.835	0.479		639	362	769
16	7	9	17	8	10	761.876	267.343	2.557		638	360	766
16	7	9	16	8	8	747.594	267.343	1.915		640	360	769
16	7	9	15	8	8	734.153	267.343	0.319		642	361	772

16	8	8	17	9	9	767.995	314.007	2.242		640	359	767
16	8	8	16	9	7	753.715	314.007	1.427		642	359	769
16	8	8	15	9	7	740.274	314.007	0.200		643	359	771
16	9	7	17	10	8	774.073	366.792	1.901		638	357	762
16	9	7	16	10	6	759.793	366.792	1.016		641	357	765
16	9	7	15	10	6	746.354	366.792	0.118		638	356	764
16	10	6	17	11	7	780.106	425.655	1.559		629	353	748
16	10	6	16	11	5	765.827	425.655	0.687		638	356	756
16	10	6	15	11	5	752.388	425.655	0.064		621	350	739
16	11	5	17	12	6	786.089	490.552	1.239		610	347	720
16	11	5	16	12	4	771.811	490.552	0.438		637	357	746
16	11	5	15	12	4	758.373	490.552	0.032		605	345	713
16	12	4	17	13	5	792.019	561.434	0.954		607	347	704
16	12	4	16	13	3	777.741	561.434	0.260		642	361	742
16	12	4	15	13	3	764.302	561.434	0.014		621	352	719
16	13	3	17	14	4	797.890	638.245	0.712		625	356	720
16	13	3	16	14	2	783.613	638.245	0.141		650	366	745
16	13	3	15	14	2	770.174	638.245	0.005		614	351	706
16	14	2	17	15	3	803.698	720.927	0.515		639	362	731
16	14	2	16	15	1	789.420	720.927	0.066		628	356	714
16	14	2	15	15	1	775.981	720.927	0.001		622	354	709
16	15	1	17	16	2	809.438	809.418	0.362		582	341	656
16	15	1	16	16	0	795.160	809.418	0.022		586	342	657
17	1	17	18	2	16	731.828	127.261	0.841	1126	675	374	806
17	1	17	17	2	16	714.311	127.261	3.534		655	365	775
17	1	17	16	2	14	701.784	127.261	0.621		676	374	805
17	2	16	18	3	15	732.577	140.642	2.402	1123	658	370	782
17	2	16	17	3	15	717.185	140.642	4.537		655	370	777
17	2	16	16	3	13	702.995	140.642	1.323		660	371	783
17	3	15	18	4	14	737.932	156.897	2.860	1108	642	367	765
17	3	15	17	4	14	722.773	156.897	4.171		644	368	767
17	3	15	16	4	12	708.471	156.897	1.199		645	368	768
17	4	14	18	5	13	744.140	178.740	2.942	1080	634	364	759
17	4	14	17	5	13	729.004	178.740	3.628		636	365	760
17	4	14	16	5	11	714.710	178.740	0.952		637	365	762
17	5	13	18	6	12	750.367	206.814	2.874	1041	631	362	757
17	5	13	17	6	12	735.238	206.814	3.059		633	363	760
17	5	13	16	6	10	720.951	206.814	0.716		634	363	762
17	6	12	18	7	11	756.558	241.123	2.697		632	360	759
17	6	12	17	7	11	741.433	241.123	2.491		634	361	762
17	6	12	16	7	9	727.150	241.123	0.513		636	361	765
17	7	11	18	8	10	762.714	281.626	2.441		635	359	761
17	7	11	17	8	10	747.592	281.626	1.953		637	360	764
17	7	11	16	8	8	733.311	281.626	0.350		638	360	766
17	8	10	18	9	9	768.833	328.289	2.134		637	358	761
17	8	10	17	9	9	753.713	328.289	1.471		639	358	764
17	8	10	16	9	7	739.433	328.289	0.226		640	359	767
17	9	9	18	10	8	774.911	381.072	1.805		637	356	758
17	9	9	17	10	8	759.792	381.072	1.062		637	356	760
17	9	9	16	10	6	745.513	381.072	0.138		640	357	763
17	10	8	18	11	7	780.944	439.934	1.477		633	355	751
17	10	8	17	11	7	765.826	439.934	0.732		627	353	745
17	10	8	16	11	5	751.548	439.934	0.079		636	356	754
17	11	7	18	12	6	786.928	504.831	1.171		624	352	735

17	11	7	17	12	6	771.811	504.831	0.480		602	344	712
17	11	7	16	12	4	757.533	504.831	0.042		630	354	739
17	12	6	18	13	5	792.858	575.712	0.900		611	349	710
17	12	6	17	13	5	777.741	575.712	0.297		574	338	671
17	12	6	16	13	3	763.463	575.712	0.020		618	352	718
17	13	5	18	14	4	798.729	652.523	0.670		610	350	701
17	13	5	17	14	4	783.612	652.523	0.171		587	342	677
17	13	5	16	14	2	769.334	652.523	0.008		618	352	710
17	14	4	18	15	3	804.537	735.205	0.484		623	356	714
17	14	4	17	15	3	789.420	735.205	0.090		612	353	704
17	14	4	16	15	1	775.142	735.205	0.003		600	346	684
17	15	3	18	16	2	810.277	823.696	0.339		630	360	719
17	15	3	17	16	2	795.160	823.696	0.041		598	347	682
17	15	3	16	16	0	780.882	823.696	0.001		602	348	682
18	0	18	19	1	19	716.994	141.078	7.256	1133	637	357	753
18	0	18	18	1	17	710.036	141.078	4.390		677	373	808
18	0	18	17	1	17	687.113	141.078	6.359		642	358	761
18	1	17	19	2	18	722.240	150.184	3.591	1126	671	374	800
18	1	17	18	2	16	708.904	150.184	7.095		681	377	817
18	1	17	17	2	16	691.388	150.184	2.669		674	375	804
18	2	16	19	3	17	730.817	158.158	2.605	1115	662	373	792
18	2	16	18	3	15	715.061	158.158	4.965		666	374	797
18	2	16	17	3	15	699.668	158.158	1.485		664	374	794
18	3	15	19	4	16	738.524	172.289	2.746	1106	644	367	768
18	3	15	18	4	14	722.539	172.289	4.148		645	368	769
18	3	15	17	4	14	707.381	172.289	1.210		646	368	770
18	4	14	19	5	15	744.960	193.899	2.817	1077	632	364	756
18	4	14	18	5	13	728.982	193.899	3.605		633	364	757
18	4	14	17	5	13	713.846	193.899	0.972		634	364	759
18	5	13	19	6	14	751.200	221.951	2.746	1039	628	361	754
18	5	13	18	6	12	735.230	221.951	3.049		629	362	756
18	5	13	17	6	12	720.102	221.951	0.741		631	362	758
18	6	12	19	7	13	757.394	256.251	2.571		628	360	755
18	6	12	18	7	11	741.429	256.251	2.494		630	360	757
18	6	12	17	7	11	726.305	256.251	0.540		632	361	760
18	7	11	19	8	12	763.551	296.750	2.321		631	358	756
18	7	11	18	8	10	747.589	296.750	1.968		633	359	758
18	7	11	17	8	10	732.468	296.750	0.375		635	359	761
18	8	10	19	9	11	769.670	343.410	2.025		633	357	756
18	8	10	18	9	9	753.711	343.410	1.495		635	357	759
18	8	10	17	9	9	738.592	343.410	0.248		637	358	762
18	9	9	19	10	10	775.749	396.191	1.708		633	356	752
18	9	9	18	10	8	759.791	396.191	1.091		635	356	755
18	9	9	17	10	8	744.673	396.191	0.155		636	356	757
18	10	8	19	11	9	781.782	455.053	1.395		629	354	744
18	10	8	18	11	7	765.826	455.053	0.763		634	355	750
18	10	8	17	11	7	750.708	455.053	0.092		627	353	745
18	11	7	19	12	8	787.767	519.948	1.103		616	349	728
18	11	7	18	12	6	771.810	519.948	0.509		631	355	742
18	11	7	17	12	6	756.693	519.948	0.051		609	347	719
18	12	6	19	13	7	793.697	590.829	0.846		600	345	701
18	12	6	18	13	5	777.741	590.829	0.324		631	357	733
18	12	6	17	13	5	762.624	590.829	0.026		602	345	702
18	13	5	19	14	6	799.568	667.640	0.629		605	348	699

18	13	5	18	14	4	783.612	667.640	0.194		637	361	732
18	13	5	17	14	4	768.495	667.640	0.012		618	354	713
18	14	4	19	15	5	805.376	750.322	0.453		623	356	714
18	14	4	18	15	3	789.420	750.322	0.109		641	364	733
18	14	4	17	15	3	774.303	750.322	0.005		632	360	725
18	15	3	19	16	4	811.116	838.813	0.317		626	359	717
18	15	3	18	16	2	795.160	838.813	0.055		638	364	728
18	15	3	17	16	2	780.043	838.813	0.002		609	351	692
19	1	19	20	2	18	735.487	157.142	0.606	1126	670	373	801
19	1	19	19	2	18	715.282	157.142	3.225		645	363	762
19	1	19	18	2	16	701.946	157.142	0.459		671	373	800
19	2	18	20	3	17	734.753	171.494	2.075	1119	653	369	777
19	2	18	19	3	17	717.481	171.494	4.361		648	368	770
19	2	18	18	3	15	701.725	171.494	1.233		654	369	777
19	3	17	20	4	16	739.627	188.045	2.602	1103	637	365	761
19	3	17	19	4	16	722.768	188.045	4.072		638	366	762
19	3	17	18	4	14	706.783	188.045	1.199		639	366	763
19	4	16	20	5	15	745.797	209.883	2.683	1073	629	363	754
19	4	16	19	5	15	728.976	209.883	3.553		630	363	755
19	4	16	18	5	13	712.997	209.883	0.980		631	363	756
19	5	15	20	6	14	752.032	237.929	2.612	1036	625	360	751
19	5	15	19	6	14	735.222	237.929	3.013		627	361	753
19	5	15	18	6	12	719.252	237.929	0.757		628	361	755
19	6	14	20	7	13	758.229	272.221	2.440		625	359	751
19	6	14	19	7	13	741.424	272.221	2.474		627	359	753
19	6	14	18	7	11	725.459	272.221	0.558		629	360	755
19	7	13	20	8	12	764.387	312.715	2.198		627	357	751
19	7	13	19	8	12	747.586	312.715	1.962		629	358	754
19	7	13	18	8	10	731.625	312.715	0.394		631	358	756
19	8	12	20	9	11	770.508	359.371	1.913		629	356	750
19	8	12	19	9	11	753.709	359.371	1.500		632	357	754
19	8	12	18	9	9	737.750	359.371	0.265		633	357	757
19	9	11	20	10	10	776.587	412.150	1.610		629	355	747
19	9	11	19	10	10	759.790	412.150	1.104		631	355	749
19	9	11	18	10	8	743.832	412.150	0.170		634	356	753
19	10	10	20	11	9	782.621	471.010	1.312		628	354	742
19	10	10	19	11	9	765.825	471.010	0.781		626	353	742
19	10	10	18	11	7	749.868	471.010	0.104		632	355	748
19	11	9	20	12	8	788.605	535.905	1.036		623	352	734
19	11	9	19	12	8	771.810	535.905	0.529		612	348	723
19	11	9	18	12	6	755.854	535.905	0.060		628	354	738
19	12	8	20	13	7	794.535	606.785	0.793		612	349	716
19	12	8	19	13	7	777.740	606.785	0.343		584	340	685
19	12	8	18	13	5	761.785	606.785	0.032		619	352	721
19	13	7	20	14	6	800.406	683.596	0.588		599	346	695
19	13	7	19	14	6	783.612	683.596	0.211		567	337	657
19	13	7	18	14	4	767.656	683.596	0.016		609	349	702
19	14	6	20	15	5	806.214	766.278	0.423		604	349	694
19	14	6	19	15	5	789.420	766.278	0.123		589	344	676
19	14	6	18	15	3	773.465	766.278	0.007		610	351	699
19	15	5	20	16	4	811.955	854.768	0.296		616	355	705
19	15	5	19	16	4	795.160	854.768	0.067		606	352	695
19	15	5	18	16	2	779.205	854.768	0.003		620	356	708
20	0	20	21	1	21	718.384	172.751	7.131	1137	624	354	735

20	0	20	20	1	19	711.602	172.751	3.673		666	370	794
20	0	20	19	1	19	685.321	172.751	6.303		629	355	742
20	1	19	21	2	20	723.132	183.422	3.593	1127	662	371	790
20	1	19	20	2	18	709.207	183.422	6.695		675	375	812
20	1	19	19	2	18	689.001	183.422	2.783		666	372	794
20	2	18	21	3	19	731.789	191.699	2.410	1112	658	371	791
20	2	18	20	3	17	714.548	191.699	4.943		663	372	796
20	2	18	19	3	17	697.276	191.699	1.468		660	372	791
20	3	17	21	4	18	740.018	205.317	2.476	1102	640	366	767
20	3	17	20	4	16	722.355	205.317	4.001		641	366	768
20	3	17	19	4	16	705.496	205.317	1.188		642	367	768
20	4	16	21	5	17	746.602	226.743	2.542	1072	627	362	753
20	4	16	20	5	15	728.938	226.743	3.477		628	362	753
20	4	16	19	5	15	712.116	226.743	0.977		629	363	754
20	5	15	21	6	16	752.863	254.751	2.472	1035	623	359	749
20	5	15	20	6	14	735.211	254.751	2.953		624	360	751
20	5	15	19	6	14	718.400	254.751	0.763		626	360	752
20	6	14	21	7	15	759.063	289.032	2.305		622	358	747
20	6	14	20	7	13	741.418	289.032	2.432		624	358	749
20	6	14	19	7	13	724.613	289.032	0.569		626	359	752
20	7	13	21	8	14	765.223	329.520	2.073		624	356	747
20	7	13	20	8	12	747.583	329.520	1.937		626	357	749
20	7	13	19	8	12	730.781	329.520	0.407		628	357	751
20	8	12	21	9	13	771.344	376.172	1.800		625	355	745
20	8	12	20	9	11	753.707	376.172	1.489		627	356	748
20	8	12	19	9	11	736.908	376.172	0.278		630	356	751
20	9	11	21	10	12	777.424	428.949	1.512		625	354	741
20	9	11	20	10	10	759.788	428.949	1.103		627	355	744
20	9	11	19	10	10	742.991	428.949	0.182		629	355	747
20	10	10	21	11	11	783.458	487.807	1.230		623	353	736
20	10	10	20	11	9	765.824	487.807	0.787		626	354	740
20	10	10	19	11	9	749.028	487.807	0.113		625	353	740
20	11	9	21	12	10	789.443	552.701	0.969		616	350	727
20	11	9	20	12	8	771.809	552.701	0.539		625	353	735
20	11	9	19	12	8	755.014	552.701	0.067		614	349	724
20	12	8	21	13	9	795.373	623.580	0.740		602	346	705
20	12	8	20	13	7	777.740	623.580	0.355		622	353	727
20	12	8	19	13	7	760.945	623.580	0.037		597	344	699
20	13	7	21	14	8	801.245	700.390	0.548		592	344	688
20	13	7	20	14	6	783.612	700.390	0.223		623	356	723
20	13	7	19	14	6	766.818	700.390	0.020		599	346	694
20	14	6	21	15	7	807.053	783.072	0.394		603	349	695
20	14	6	20	15	5	789.420	783.072	0.133		628	359	723
20	14	6	19	15	5	772.626	783.072	0.009		614	354	707
20	15	5	21	16	6	812.793	871.562	0.275		614	355	706
20	15	5	20	16	4	795.160	871.562	0.075		630	360	721
20	15	5	19	16	4	778.366	871.562	0.004		621	357	712
21	1	21	22	2	20	739.445	190.205	0.426		664	371	796
21	1	21	21	2	20	716.350	190.205	2.862		635	360	749
21	1	21	20	2	18	702.424	190.205	0.325		665	372	795
21	2	20	22	3	19	737.121	205.625	1.716		649	367	774
21	2	20	21	3	19	717.864	205.625	4.060		642	365	764
21	2	20	20	3	17	700.622	205.625	1.087		649	367	773
21	3	19	22	4	18	741.349	222.559	2.309		634	364	759

21	3	19	21	4	18	722.777	222.559	3.863	634	364	759
21	3	19	20	4	16	705.114	222.559	1.150	635	364	760
21	4	18	22	5	17	747.448	244.405	2.396	626	361	752
21	4	18	21	5	17	728.939	244.405	3.378	627	361	752
21	4	18	20	5	15	711.275	244.405	0.964	628	362	753
21	5	17	22	6	16	753.693	272.415	2.328	622	359	748
21	5	17	21	6	16	735.199	272.415	2.873	623	359	749
21	5	17	20	6	14	717.547	272.415	0.760	624	359	750
21	6	16	22	7	15	759.896	306.684	2.168	620	357	745
21	6	16	21	7	15	741.411	306.684	2.372	622	357	746
21	6	16	20	7	13	723.766	306.684	0.573	623	358	748
21	7	15	22	8	14	766.059	347.165	1.946	620	355	743
21	7	15	21	8	14	747.578	347.165	1.895	622	356	745
21	7	15	20	8	12	729.937	347.165	0.414	624	356	747
21	8	14	22	9	13	772.181	393.813	1.687	621	354	741
21	8	14	21	9	13	753.704	393.813	1.464	623	355	743
21	8	14	20	9	11	736.066	393.813	0.287	625	355	746
21	9	13	22	10	12	778.261	446.587	1.414	622	353	737
21	9	13	21	10	12	759.786	446.587	1.091	624	354	739
21	9	13	20	10	10	742.150	446.587	0.191	626	354	742
21	10	12	22	11	11	784.296	505.443	1.148	622	352	733
21	10	12	21	11	11	765.822	505.443	0.783	622	352	734
21	10	12	20	11	9	748.188	505.443	0.121	625	353	738
21	11	11	22	12	10	790.281	570.336	0.903	619	351	727
21	11	11	21	12	10	771.808	570.336	0.542	615	349	723
21	11	11	20	12	8	754.175	570.336	0.073	623	352	732
21	12	10	22	13	9	796.211	641.214	0.689	613	349	716
21	12	10	21	13	9	777.740	641.214	0.360	593	343	697
21	12	10	20	13	7	760.106	641.214	0.042	618	351	721
21	13	9	22	14	8	802.083	718.023	0.509	600	346	699
21	13	9	21	14	8	783.611	718.023	0.230	565	336	659
21	13	9	20	14	6	765.979	718.023	0.023	607	349	704
21	14	8	22	15	7	807.891	800.705	0.365	591	345	685
21	14	8	21	15	7	789.420	800.705	0.140	565	337	653
21	14	8	20	15	5	771.787	800.705	0.012	600	347	689
21	15	7	22	16	6	813.631	889.195	0.254	601	349	691
21	15	7	21	16	6	795.160	889.195	0.081	588	345	676
21	15	7	20	16	4	777.528	889.195	0.005	606	350	693
22	0	22	23	1	23	719.818	207.553	6.802	611	351	719
22	0	22	22	1	21	713.303	207.553	3.031	654	366	780
22	0	22	21	1	21	683.581	207.553	6.042	617	352	725
22	1	21	23	2	22	724.022	219.927	3.529	653	368	779
22	1	21	22	2	20	709.724	219.927	6.011	670	373	808
22	1	21	21	2	20	686.628	219.927	2.824	657	369	783
22	2	20	23	3	21	732.638	228.721	2.204	656	369	790
22	2	20	22	3	19	714.025	228.721	4.818	661	371	797
22	2	20	21	3	19	694.768	228.721	1.420	657	370	791
22	3	19	23	4	20	741.422	241.816	2.184	638	364	767
22	3	19	22	4	18	722.091	241.816	3.760	639	365	767
22	3	19	21	4	18	703.519	241.816	1.124	640	365	767
22	4	18	23	5	19	748.226	262.978	2.247	625	360	751
22	4	18	22	5	17	728.876	262.978	3.260	626	360	751
22	4	18	21	5	17	710.367	262.978	0.942	627	361	752
22	5	17	23	6	18	754.520	290.924	2.183	620	358	747

22	5	17	22	6	16	735.184	290.924	2.775	621	358	747
22	5	17	21	6	16	716.690	290.924	0.750	622	359	748
22	6	16	23	7	17	760.729	325.178	2.030	618	356	742
22	6	16	22	7	15	741.403	325.178	2.296	619	356	744
22	6	16	21	7	15	722.917	325.178	0.571	620	357	745
22	7	15	23	8	16	766.893	365.651	1.819	618	354	739
22	7	15	22	8	14	747.573	365.651	1.840	619	355	741
22	7	15	21	8	14	729.092	365.651	0.417	621	355	743
22	8	14	23	9	15	773.017	412.294	1.574	618	353	737
22	8	14	22	9	13	753.700	412.294	1.426	620	354	738
22	8	14	21	9	13	735.223	412.294	0.292	622	354	741
22	9	13	23	10	14	779.098	465.064	1.318	619	352	732
22	9	13	22	10	12	759.784	465.064	1.068	620	353	734
22	9	13	21	10	12	741.309	465.064	0.197	622	353	737
22	10	12	23	11	13	785.133	523.918	1.068	618	351	728
22	10	12	22	11	11	765.821	523.918	0.771	620	352	731
22	10	12	21	11	11	747.347	523.918	0.127	621	352	732
22	11	11	23	12	12	791.118	588.809	0.839	615	350	721
22	11	11	22	12	10	771.807	588.809	0.537	619	351	727
22	11	11	21	12	10	753.335	588.809	0.078	615	349	722
22	12	10	23	13	11	797.048	659.686	0.639	605	346	707
22	12	10	22	13	9	777.739	659.686	0.361	617	351	721
22	12	10	21	13	9	759.267	659.686	0.046	599	345	702
22	13	9	23	14	10	802.920	736.495	0.471	588	342	687
22	13	9	22	14	8	783.611	736.495	0.233	616	352	717
22	13	9	21	14	8	765.140	736.495	0.026	587	342	685
22	14	8	23	15	9	808.729	819.176	0.338	587	344	682
22	14	8	22	15	7	789.420	819.176	0.144	618	354	716
22	14	8	21	15	7	770.949	819.176	0.014	597	347	691
22	15	7	23	16	8	814.469	907.666	0.235	601	349	695
22	15	7	22	16	6	795.160	907.666	0.085	621	356	716
22	15	7	21	16	6	776.689	907.666	0.007	610	352	703
23	1	23	24	2	22	743.685	226.441	0.295	660	369	792
23	1	23	23	2	22	717.508	226.441	2.477	626	358	738
23	1	23	22	2	20	703.209	226.441	0.224	660	370	791
23	2	22	24	3	21	739.723	243.019	1.356	646	366	772
23	2	22	23	3	21	718.340	243.019	3.668	637	364	759
23	2	22	22	3	19	699.727	243.019	0.908	645	366	770
23	3	21	24	4	20	743.114	260.429	1.997	632	362	758
23	3	21	23	4	20	722.809	260.429	3.567	631	362	758
23	3	21	22	4	18	703.479	260.429	1.061	632	363	758
23	4	20	24	5	19	749.093	282.308	2.096	622	359	751
23	4	20	23	5	19	728.895	282.308	3.126	623	360	751
23	4	20	22	5	17	709.545	282.308	0.912	624	360	751
23	5	19	24	6	18	755.347	310.273	2.036	618	357	746
23	5	19	23	6	18	735.170	310.273	2.663	619	358	747
23	5	19	22	6	16	715.834	310.273	0.732	620	358	747
23	6	18	24	7	17	761.560	344.513	1.892	616	355	741
23	6	18	23	7	17	741.393	344.513	2.207	617	356	742
23	6	18	22	7	15	722.067	344.513	0.562	618	356	743
23	7	17	24	8	16	767.727	384.977	1.693	615	354	736
23	7	17	23	8	16	747.567	384.977	1.772	617	354	738
23	7	17	22	8	14	728.247	384.977	0.414	618	355	740
23	8	16	24	9	15	773.852	431.614	1.463	616	352	733

23	8	16	23	9	15	753.697	431.614	1.378	617	353	735
23	8	16	22	9	13	734.380	431.614	0.293	619	353	737
23	9	15	24	10	14	779.934	484.380	1.223	616	351	728
23	9	15	23	10	14	759.781	484.380	1.036	618	352	730
23	9	15	22	10	12	740.468	484.380	0.200	619	352	733
23	10	14	24	11	13	785.969	543.232	0.989	615	350	724
23	10	14	23	11	13	765.819	543.232	0.752	617	351	725
23	10	14	22	11	11	746.507	543.232	0.130	619	351	728
23	11	13	24	12	12	791.955	608.121	0.776	614	350	719
23	11	13	23	12	12	771.806	608.121	0.527	613	349	718
23	11	13	22	12	10	752.495	608.121	0.082	617	351	724
23	12	12	24	13	11	797.886	678.997	0.590	610	348	712
23	12	12	23	13	11	777.738	678.997	0.356	599	345	701
23	12	12	22	13	9	758.428	678.997	0.049	614	350	717
23	13	11	24	14	10	803.758	755.805	0.435	601	346	701
23	13	11	23	14	10	783.610	755.805	0.232	572	338	670
23	13	11	22	14	8	764.301	755.805	0.028	606	348	706
23	14	10	24	15	9	809.566	838.485	0.311	588	343	685
23	14	10	23	15	9	789.419	838.485	0.145	555	334	644
23	14	10	22	15	7	770.111	838.485	0.015	594	345	689
23	15	9	24	16	8	815.307	926.975	0.216	587	344	681
23	15	9	23	16	8	795.160	926.975	0.087	566	338	658
23	15	9	22	16	6	775.851	926.975	0.008	593	346	683
24	0	24	25	1	25	721.287	245.486	6.314	597	348	705
24	0	24	24	1	23	715.097	245.486	2.478	643	363	766
24	0	24	23	1	23	681.885	245.486	5.622	603	349	711
24	1	23	25	2	24	724.936	259.654	3.397	645	365	770
24	1	23	24	2	22	710.473	259.654	5.156	666	371	803
24	1	23	23	2	22	684.295	259.654	2.787	648	366	773
24	2	22	25	3	23	733.381	269.196	1.996	654	368	789
24	2	22	24	3	21	713.546	269.196	4.586	661	370	797
24	2	22	23	3	21	692.163	269.196	1.349	655	369	790
24	3	21	25	4	22	742.712	281.812	1.885	638	364	768
24	3	21	24	4	20	721.731	281.812	3.453	640	364	769
24	3	21	23	4	20	701.426	281.812	1.029	639	364	768
24	4	20	25	5	21	749.824	302.613	1.946	623	359	751
24	4	20	24	5	19	728.788	302.613	2.980	623	359	751
24	4	20	23	5	19	708.590	302.613	0.877	624	360	752
24	5	19	25	6	20	756.168	330.471	1.891	617	357	746
24	5	19	24	6	18	735.149	330.471	2.540	617	357	746
24	5	19	23	6	18	714.972	330.471	0.709	618	357	746
24	6	18	25	7	19	762.389	364.690	1.755	614	355	740
24	6	18	24	7	17	741.383	364.690	2.107	615	355	740
24	6	18	23	7	17	721.216	364.690	0.549	616	355	741
24	7	17	25	8	18	768.560	405.143	1.568	613	353	734
24	7	17	24	8	16	747.561	405.143	1.695	614	353	735
24	7	17	23	8	16	727.401	405.143	0.407	616	354	737
24	8	16	25	9	17	774.687	451.774	1.353	613	352	730
24	8	16	24	9	15	753.692	451.774	1.322	614	352	731
24	8	16	23	9	15	733.537	451.774	0.291	616	352	734
24	9	15	25	10	16	780.769	504.536	1.130	613	350	724
24	9	15	24	10	14	759.778	504.536	0.997	614	351	726
24	9	15	23	10	14	739.626	504.536	0.200	616	351	728
24	10	14	25	11	15	786.805	563.384	0.913	612	349	720

24	10	14	24	11	13	765.817	563.384	0.727	614	350	722
24	10	14	23	11	13	745.667	563.384	0.132	615	350	724
24	11	13	25	12	14	792.791	628.271	0.715	609	348	714
24	11	13	24	12	12	771.804	628.271	0.512	613	349	718
24	11	13	23	12	12	751.656	628.271	0.084	612	349	717
24	12	12	25	13	13	798.722	699.146	0.543	603	346	704
24	12	12	24	13	11	777.737	699.146	0.348	612	349	714
24	12	12	23	13	11	757.589	699.146	0.051	601	346	703
24	13	11	25	14	12	804.594	775.953	0.400	588	343	689
24	13	11	24	14	10	783.610	775.953	0.228	610	349	711
24	13	11	23	14	10	763.462	775.953	0.030	584	341	685
24	14	10	25	15	11	810.403	858.632	0.286	579	341	677
24	14	10	24	15	9	789.419	858.632	0.144	611	351	711
24	14	10	23	15	9	769.272	858.632	0.016	582	342	679
24	15	9	25	16	10	816.144	947.121	0.198	587	344	684
24	15	9	24	16	8	795.160	947.121	0.088	613	353	712
24	15	9	23	16	8	775.013	947.121	0.009	597	347	692
25	1	25	26	2	24	748.182	265.843	0.202	655	368	787
25	1	25	25	2	24	718.747	265.843	2.095	616	355	729
25	1	25	24	2	22	704.283	265.843	0.151	656	368	788
25	2	24	26	3	23	742.597	283.660	1.024	645	365	772
25	2	24	25	3	23	718.917	283.660	3.221	632	362	754
25	2	24	24	3	21	699.082	283.660	0.717	643	365	769
25	3	23	26	4	22	744.944	301.647	1.682	630	361	757
25	3	23	25	4	22	722.876	301.647	3.211	628	361	756
25	3	23	24	4	20	701.896	301.647	0.944	630	362	757
25	4	22	26	5	21	750.734	323.594	1.795	620	358	750
25	4	22	25	5	21	728.843	323.594	2.822	621	358	751
25	4	22	24	5	19	707.808	323.594	0.836	621	359	751
25	5	21	26	6	20	756.993	351.507	1.747	616	356	746
25	5	21	25	6	20	735.132	351.507	2.407	617	356	746
25	5	21	24	6	18	714.113	351.507	0.681	617	357	746
25	6	20	26	7	19	763.218	385.709	1.621	613	354	739
25	6	20	25	7	19	741.371	385.709	1.998	614	354	740
25	6	20	24	7	17	720.364	385.709	0.530	615	355	740
25	7	19	26	8	18	769.392	426.150	1.447	611	352	732
25	7	19	25	8	18	747.553	426.150	1.611	612	353	734
25	7	19	24	8	16	726.554	426.150	0.397	614	353	735
25	8	18	26	9	17	775.521	472.773	1.247	610	351	727
25	8	18	25	9	17	753.687	472.773	1.258	612	351	729
25	8	18	24	9	15	732.693	472.773	0.286	613	352	730
25	9	17	26	10	16	781.604	525.530	1.040	610	350	721
25	9	17	25	10	16	759.775	525.530	0.952	612	350	723
25	9	17	24	10	14	738.784	525.530	0.198	613	350	725
25	10	16	26	11	15	787.641	584.375	0.839	609	349	716
25	10	16	25	11	15	765.814	584.375	0.696	610	349	718
25	10	16	24	11	13	744.826	584.375	0.132	613	350	720
25	11	15	26	12	14	793.627	649.260	0.656	607	348	712
25	11	15	25	12	14	771.803	649.260	0.493	607	348	712
25	11	15	24	12	12	750.816	649.260	0.085	611	349	716
25	12	14	26	13	13	799.559	720.133	0.497	605	347	706
25	12	14	25	13	13	777.736	720.133	0.337	599	345	700
25	12	14	24	13	11	756.750	720.133	0.052	609	348	711
25	13	13	26	14	12	805.431	796.938	0.366	599	346	699

25	13	13	25	14	12	783.609	796.938	0.222	578	340	678
25	13	13	24	14	10	762.624	796.938	0.031	604	347	704
25	14	12	26	15	11	811.240	879.617	0.261	588	343	688
25	14	12	25	15	11	789.418	879.617	0.142	555	334	645
25	14	12	24	15	9	768.434	879.617	0.017	593	345	692
25	15	11	26	16	10	816.981	968.106	0.181	580	342	678
25	15	11	25	16	10	795.160	968.106	0.087	552	334	642
25	15	11	24	16	8	774.176	968.106	0.009	585	343	680
26	0	26	27	1	27	722.785	286.549	5.715	586	346	693
26	0	26	26	1	25	716.943	286.549	2.010	632	360	753
26	0	26	25	1	25	680.224	286.549	5.092	591	347	698
26	1	25	27	2	26	725.900	302.562	3.196	637	362	760
26	1	25	26	2	24	711.463	302.562	4.247	662	369	798
26	1	25	25	2	24	682.028	302.562	2.673	640	363	763
26	2	24	27	3	25	734.036	313.095	1.791	652	367	787
26	2	24	26	3	23	713.161	313.095	4.244	661	369	798
26	2	24	25	3	23	689.482	313.095	1.263	653	367	788
26	3	23	27	4	24	743.864	325.327	1.595	638	363	771
26	3	23	26	4	22	721.265	325.327	3.107	640	364	771
26	3	23	25	4	22	699.197	325.327	0.917	639	363	771
26	4	22	27	5	23	751.386	345.662	1.651	621	358	752
26	4	22	26	5	21	728.666	345.662	2.660	621	358	752
26	4	22	25	5	21	706.775	345.662	0.791	622	359	752
26	5	21	27	6	22	757.806	373.397	1.606	615	356	745
26	5	21	26	6	20	735.103	373.397	2.267	615	356	745
26	5	21	25	6	20	713.242	373.397	0.649	616	356	745
26	6	20	27	7	21	764.045	407.570	1.490	612	353	738
26	6	20	26	7	19	741.357	407.570	1.884	612	354	739
26	6	20	25	7	19	719.510	407.570	0.509	613	354	739
26	7	19	27	8	20	770.223	447.997	1.329	610	352	730
26	7	19	26	8	18	747.544	447.997	1.521	610	352	731
26	7	19	25	8	18	725.706	447.997	0.383	612	352	733
26	8	18	27	9	19	776.354	494.612	1.144	608	350	725
26	8	18	26	9	17	753.682	494.612	1.190	609	350	726
26	8	18	25	9	17	731.848	494.612	0.278	611	351	728
26	9	17	27	10	18	782.439	547.364	0.953	607	349	718
26	9	17	26	10	16	759.771	547.364	0.902	608	349	720
26	9	17	25	10	16	737.942	547.364	0.194	610	350	721
26	10	16	27	11	17	788.476	606.205	0.768	605	348	713
26	10	16	26	11	15	765.812	606.205	0.662	607	348	715
26	10	16	25	11	15	743.985	606.205	0.130	609	349	716
26	11	15	27	12	16	794.463	671.086	0.600	603	347	707
26	11	15	26	12	14	771.801	671.086	0.470	606	348	710
26	11	15	25	12	14	749.976	671.086	0.084	606	347	710
26	12	14	27	13	15	800.395	741.957	0.454	598	345	700
26	12	14	26	13	13	777.734	741.957	0.323	605	347	706
26	12	14	25	13	13	755.911	741.957	0.053	599	345	701
26	13	13	27	14	14	806.268	818.761	0.334	587	343	688
26	13	13	26	14	12	783.608	818.761	0.214	604	347	705
26	13	13	25	14	12	761.786	818.761	0.031	584	342	685
26	14	12	27	15	13	812.077	901.440	0.238	575	340	674
26	14	12	26	15	11	789.418	901.440	0.137	605	348	705
26	14	12	25	15	11	767.596	901.440	0.018	574	340	672
26	15	11	27	16	12	817.818	989.928	0.165	576	341	675

26	15	11	26	16	10	795.159	589.928	0.085	607	350	708
26	15	11	25	16	10	773.338	989.928	0.010	582	343	681
27	1	27	28	2	26	752.907	308.405	0.139	650	366	781
27	1	27	27	2	26	720.058	308.405	1.736	607	353	721
27	1	27	26	2	24	705.621	308.405	0.101	651	367	784
27	2	26	28	3	25	745.772	327.532	0.740	644	365	773
27	2	26	27	3	25	719.599	327.532	2.754	627	360	750
27	2	26	26	3	23	698.725	327.532	0.538	642	364	770
27	3	25	28	4	24	746.867	346.201	1.377	629	361	757
27	3	25	27	4	24	722.989	346.201	2.820	627	360	755
27	3	25	26	4	22	700.390	346.201	0.811	629	361	756
27	4	24	28	5	23	752.375	368.261	1.507	619	357	750
27	4	24	27	5	23	728.788	368.261	2.489	619	357	751
27	4	24	26	5	21	706.067	368.261	0.742	619	358	750
27	5	23	28	6	22	758.631	396.118	1.470	614	355	745
27	5	23	27	6	22	735.085	396.118	2.123	615	355	746
27	5	23	26	6	20	712.382	396.118	0.614	615	355	745
27	6	22	28	7	21	764.871	430.273	1.363	611	353	738
27	6	22	27	7	21	741.342	430.273	1.766	612	353	738
27	6	22	26	7	19	718.654	430.273	0.484	612	353	739
27	7	21	28	8	20	771.053	470.685	1.215	608	351	729
27	7	21	27	8	20	747.535	470.685	1.427	609	351	730
27	7	21	26	8	18	724.856	470.685	0.367	610	352	731
27	8	20	28	9	19	777.186	517.290	1.045	606	349	722
27	8	20	27	9	19	753.675	517.290	1.119	608	350	724
27	8	20	26	9	17	731.003	517.290	0.267	608	350	725
27	9	19	28	10	18	783.272	570.035	0.869	605	348	716
27	9	19	27	10	18	759.767	570.035	0.850	606	348	717
27	9	19	26	10	16	737.099	570.035	0.188	607	349	719
27	10	18	28	11	17	789.311	628.872	0.700	603	347	710
27	10	18	27	11	17	765.809	628.872	0.625	604	347	712
27	10	18	26	11	15	743.144	628.872	0.127	606	348	713
27	11	17	28	12	16	795.298	693.751	0.546	601	346	705
27	11	17	27	12	16	771.799	693.751	0.445	602	346	705
27	11	17	26	12	14	749.136	693.751	0.083	604	347	709
27	12	16	28	13	15	801.231	764.620	0.413	599	346	700
27	12	16	27	13	15	777.733	764.620	0.307	595	345	697
27	12	16	26	13	13	755.072	764.620	0.052	602	347	704
27	13	15	28	14	14	807.104	841.422	0.303	594	345	695
27	13	15	27	14	14	783.607	841.422	0.204	580	341	681
27	13	15	26	14	12	760.947	841.422	0.032	599	346	700
27	14	14	28	15	13	812.913	924.099	0.216	587	343	688
27	14	14	27	15	13	789.417	924.099	0.132	558	335	651
27	14	14	26	15	11	766.758	924.099	0.018	592	345	693
27	15	13	28	16	12	818.654	1012.587	0.149	579	341	678
27	15	13	27	16	12	795.159	1012.587	0.082	546	333	635
27	15	13	26	16	10	772.500	1012.587	0.010	583	342	682
28	0	28	29	1	29	724.304	330.746	5.052	576	344	683
28	0	28	28	1	27	718.801	330.746	1.616	621	357	741
28	0	28	27	1	27	678.589	330.746	4.499	580	345	687
28	1	27	29	2	28	726.934	348.617	2.935	628	360	751
28	1	27	28	2	26	712.695	348.617	3.382	657	368	791
28	1	27	27	2	26	679.845	348.617	2.489	631	361	754
28	2	26	29	3	27	734.625	360.382	1.594	650	366	783

28	2	26	28	3	25	712.923	360.382	3.801	660	368	797
28	2	26	27	3	25	686.750	360.382	1.164	651	366	784
28	3	25	29	4	26	744.863	372.375	1.327	640	362	773
28	3	25	28	4	24	720.694	372.375	2.746	642	363	774
28	3	25	27	4	24	696.816	372.375	0.798	640	363	773
28	4	24	29	5	25	752.901	392.138	1.372	621	358	753
28	4	24	28	5	23	728.497	392.138	2.321	621	358	752
28	4	24	27	5	23	704.910	392.138	0.693	622	358	753
28	5	23	29	6	24	759.431	419.706	1.339	614	355	745
28	5	23	28	6	22	735.043	419.706	1.978	614	355	745
28	5	23	27	6	22	711.498	419.706	0.576	614	355	745
28	6	22	29	7	23	765.694	453.819	1.242	611	353	737
28	6	22	28	7	21	741.325	453.819	1.645	611	353	737
28	6	22	27	7	21	717.796	453.819	0.457	611	353	738
28	7	21	29	8	22	771.881	494.214	1.106	607	351	728
28	7	21	28	8	20	747.524	494.214	1.331	608	351	728
28	7	21	27	8	20	724.006	494.214	0.348	609	351	729
28	8	20	29	9	21	778.017	540.808	0.951	605	349	720
28	8	20	28	9	19	753.668	540.808	1.045	606	349	721
28	8	20	27	9	19	730.157	540.808	0.255	607	349	722
28	9	19	29	10	20	784.105	593.546	0.790	603	347	713
28	9	19	28	10	18	759.762	593.546	0.795	604	348	714
28	9	19	27	10	18	736.256	593.546	0.181	605	348	716
28	10	18	29	11	19	790.145	652.378	0.635	600	346	707
28	10	18	28	11	17	765.805	652.378	0.586	602	347	709
28	10	18	27	11	17	742.303	652.378	0.123	603	347	710
28	11	17	29	12	18	796.133	717.253	0.495	598	345	701
28	11	17	28	12	16	771.796	717.253	0.419	600	346	703
28	11	17	27	12	16	748.296	717.253	0.081	600	346	704
28	12	16	29	13	17	802.066	788.119	0.374	593	344	694
28	12	16	28	13	15	777.731	788.119	0.289	598	345	699
28	12	16	27	13	15	754.233	788.119	0.051	595	344	696
28	13	15	29	14	16	807.939	864.920	0.274	585	342	685
28	13	15	28	14	14	783.606	864.920	0.193	598	346	697
28	13	15	27	14	14	760.109	864.920	0.031	584	342	684
28	14	14	29	15	15	813.749	947.596	0.195	574	340	672
28	14	14	28	15	13	789.416	947.596	0.125	599	346	699
28	14	14	27	15	13	765.920	947.596	0.018	571	339	669
28	15	13	29	16	14	819.490	1036.083	0.135	570	339	667
28	15	13	28	16	12	795.158	1036.083	0.078	602	348	703
28	15	13	27	16	12	771.663	1036.083	0.010	586	340	670
29	1	29	30	2	28	757.824	354.120	0.095	645	364	775
29	1	29	29	2	28	721.430	354.120	1.412	598	351	714
29	1	29	28	2	26	707.192	354.120	0.068	647	365	779
29	2	28	30	3	27	749.268	374.620	0.515	643	364	773
29	2	28	29	3	27	720.387	374.620	2.296	622	359	746
29	2	28	28	3	25	698.684	374.620	0.384	641	364	771
29	3	27	30	4	26	748.915	394.077	1.093	629	360	757
29	3	27	29	4	26	723.161	394.077	2.418	625	359	754
29	3	27	28	4	24	698.991	394.077	0.673	628	360	756
29	4	26	30	5	25	754.023	416.308	1.238	618	356	751
29	4	26	29	5	25	728.731	416.308	2.148	619	357	751
29	4	26	28	5	23	704.328	416.308	0.640	618	357	751
29	5	25	30	6	24	760.258	444.109	1.214	613	354	745

29	5	25	29	6	24	735.027	444.109	1.832	614	354	746
29	5	25	28	6	22	710.640	444.109	0.537	614	355	745
29	6	24	30	7	23	766.516	478.207	1.126	610	352	738
29	6	24	29	7	23	741.306	478.207	1.524	611	352	738
29	6	24	28	7	21	716.937	478.207	0.428	611	353	738
29	7	23	30	8	22	772.708	518.583	1.003	606	350	727
29	7	23	29	8	22	747.512	518.583	1.234	607	350	728
29	7	23	28	8	20	723.155	518.583	0.328	608	351	728
29	8	22	30	9	21	778.848	565.165	0.861	603	348	718
29	8	22	29	9	21	753.660	565.165	0.970	604	349	719
29	8	22	28	9	19	729.311	565.165	0.242	605	349	720
29	9	21	30	10	20	784.938	617.895	0.715	601	347	710
29	9	21	29	10	20	759.756	617.895	0.739	602	347	712
29	9	21	28	10	18	735.413	617.895	0.172	603	347	714
29	10	20	30	11	19	790.979	676.722	0.574	598	346	704
29	10	20	29	11	19	765.801	676.722	0.546	599	346	706
29	10	20	28	11	17	741.461	676.722	0.118	601	346	708
29	11	19	30	12	18	796.967	741.593	0.447	595	345	699
29	11	19	29	12	18	771.793	741.593	0.391	596	345	700
29	11	19	28	12	16	747.456	741.593	0.078	598	346	702
29	12	18	30	13	17	802.900	812.457	0.338	593	344	693
29	12	18	29	13	17	777.729	812.457	0.271	591	344	692
29	12	18	28	13	15	753.394	812.457	0.050	596	345	697
29	13	17	30	14	16	808.774	889.255	0.247	589	343	689
29	13	17	29	14	16	783.604	889.255	0.182	580	341	679
29	13	17	28	14	14	759.271	889.255	0.031	594	344	694
29	14	16	30	15	15	814.584	571.930	0.176	585	342	684
29	14	16	29	15	15	789.415	971.930	0.118	562	336	655
29	14	16	28	15	13	765.083	571.930	0.018	590	344	691
29	15	15	30	16	14	820.326	1060.415	0.121	579	341	678
29	15	15	29	16	14	795.157	1060.415	0.074	545	332	633
29	15	15	28	16	12	770.826	1060.415	0.010	583	342	683
30	0	30	31	1	31	725.839	378.076	4.368	567	342	676
30	0	30	30	1	29	720.646	378.076	1.285	611	354	730
30	0	30	29	1	29	676.974	378.076	3.885	571	343	679
30	1	29	31	2	30	728.048	397.792	2.628	619	357	742
30	1	29	30	2	28	714.153	397.792	2.621	652	366	783
30	1	29	29	2	28	677.759	397.792	2.250	622	358	744
30	2	28	31	3	29	735.174	411.014	1.404	647	365	779
30	2	28	30	3	27	712.874	411.014	3.282	660	367	796
30	2	28	29	3	27	683.993	411.014	1.058	649	365	780
30	3	27	31	4	28	745.703	422.958	1.087	641	362	775
30	3	27	30	4	26	720.034	422.958	2.388	644	363	776
30	3	27	29	4	26	694.280	422.958	0.680	642	363	775
30	4	26	31	5	27	754.349	442.062	1.117	622	357	754
30	4	26	30	5	25	728.269	442.062	1.983	622	357	753
30	4	26	29	5	25	702.977	442.062	0.591	622	358	754
30	5	25	31	6	26	761.039	469.401	1.095	613	354	745
30	5	25	30	6	24	734.967	469.401	1.688	613	354	744
30	5	25	29	6	24	709.736	469.401	0.498	613	354	745
30	6	24	31	7	25	767.335	503.438	1.016	610	352	737
30	6	24	30	7	23	741.284	503.438	1.405	609	352	737
30	6	24	29	7	23	716.075	503.438	0.399	610	352	737
30	7	23	31	8	24	773.535	543.792	0.905	606	350	726

30	7	23	30	8	22	747.499	543.792	1.138	606	350	726
30	7	23	29	8	22	722.303	543.792	0.307	607	350	727
30	8	22	31	9	23	779.677	590.361	0.776	602	348	716
30	8	22	30	9	21	753.651	590.361	0.895	602	348	717
30	8	22	29	9	21	728.464	590.361	0.227	604	348	718
30	9	21	31	10	22	785.769	643.083	0.644	599	346	708
30	9	21	30	10	20	759.750	643.083	0.683	600	346	709
30	9	21	29	10	20	734.569	643.083	0.163	601	347	711
30	10	20	31	11	21	791.811	701.903	0.517	596	345	702
30	10	20	30	11	19	765.797	701.903	0.506	597	345	703
30	10	20	29	11	19	740.620	701.903	0.112	598	346	704
30	11	19	31	12	20	797.801	766.770	0.402	592	344	695
30	11	19	30	12	18	771.790	766.770	0.363	594	344	697
30	11	19	29	12	18	746.616	766.770	0.075	595	345	698
30	12	18	31	13	19	803.735	837.630	0.303	588	343	689
30	12	18	30	13	17	777.727	837.630	0.252	592	344	693
30	12	18	29	13	17	752.555	837.630	0.048	590	343	691
30	13	17	31	14	18	809.609	914.427	0.222	582	341	681
30	13	17	30	14	16	783.603	914.427	0.170	591	344	690
30	13	17	29	14	16	758.433	914.427	0.030	582	341	681
30	14	16	31	15	17	815.419	997.100	0.158	572	339	670
30	14	16	30	15	15	789.414	997.100	0.110	593	344	692
30	14	16	29	15	15	764.245	997.100	0.018	570	339	667
30	15	15	31	16	16	821.161	1085.584	0.109	566	338	662
30	15	15	30	16	14	795.157	1085.584	0.070	597	346	696
30	15	15	29	16	14	769.989	1085.584	0.010	566	338	662
31	1	31	32	2	30	762.893	402.985	0.066	639	362	769
31	1	31	31	2	30	722.854	402.985	1.127	590	349	708
31	1	31	30	2	28	708.959	402.985	0.045	642	363	773
31	2	30	32	3	29	753.087	424.909	0.347	643	364	774
31	2	30	31	3	29	721.279	424.909	1.869	617	357	743
31	2	30	30	3	27	698.979	424.909	0.262	641	363	772
31	3	29	32	4	28	751.126	445.259	0.840	629	360	757
31	3	29	31	4	28	723.403	445.259	2.025	623	358	753
31	3	29	30	4	26	697.733	445.259	0.538	627	360	756
31	4	28	32	5	27	755.687	467.731	0.996	618	356	750
31	4	28	31	5	27	728.680	467.731	1.814	619	356	751
31	4	28	30	5	25	702.599	467.731	0.538	618	356	750
31	5	27	32	6	26	761.877	495.481	0.983	613	354	745
31	5	27	31	6	26	734.958	495.481	1.547	613	354	746
31	5	27	30	6	24	708.886	495.481	0.458	613	354	745
31	6	26	32	7	25	768.153	529.510	0.913	610	351	737
31	6	26	31	7	25	741.262	529.510	1.288	610	352	737
31	6	26	30	7	23	715.212	529.510	0.369	610	352	737
31	7	25	32	8	24	774.359	569.843	0.813	605	349	725
31	7	25	31	8	24	747.484	569.843	1.044	606	350	726
31	7	25	30	8	22	721.449	569.843	0.285	606	350	726
31	8	24	32	9	23	780.506	616.397	0.697	601	347	715
31	8	24	31	9	23	753.642	616.397	0.822	602	348	716
31	8	24	30	9	21	727.616	616.397	0.212	602	348	717
31	9	23	32	10	22	786.600	669.109	0.578	597	346	706
31	9	23	31	10	22	759.743	669.109	0.628	598	346	707
31	9	23	30	10	20	733.724	669.109	0.152	599	346	708
31	10	22	32	11	21	792.644	727.922	0.463	594	344	700

31	10	22	31	11	21	765.792	727.922	0.465	595	345	701
31	10	22	30	11	19	739.778	727.922	0.106	596	345	702
31	11	21	32	12	20	798.634	792.784	0.360	591	343	694
31	11	21	31	12	20	771.787	792.784	0.334	591	344	694
31	11	21	30	12	18	745.776	792.784	0.071	593	344	696
31	12	20	32	13	19	804.569	863.641	0.271	587	343	688
31	12	20	31	13	19	777.724	863.641	0.233	586	342	687
31	12	20	30	13	17	751.716	863.641	0.046	590	343	691
31	13	19	32	14	18	810.443	940.435	0.198	584	342	683
31	13	19	31	14	18	783.601	940.435	0.157	578	340	677
31	13	19	30	14	16	757.594	940.435	0.029	588	343	687
31	14	18	32	15	17	816.254	1023.106	0.141	581	341	680
31	14	18	31	15	17	789.413	1023.106	0.103	564	337	658
31	14	18	30	15	15	763.408	1023.106	0.017	586	343	686
31	15	17	32	16	16	821.996	1111.589	0.097	578	341	677
31	15	17	31	16	16	795.156	1111.589	0.065	546	333	635
31	15	17	30	16	14	769.152	1111.589	0.010	582	342	682
32	0	32	33	1	33	727.384	428.541	3.698	561	341	671
32	0	32	32	1	31	722.459	428.541	1.010	601	352	721
32	0	32	31	1	31	675.374	428.541	3.283	564	341	673
32	1	31	33	2	32	729.245	450.071	2.292	611	355	735
32	1	31	32	2	30	715.807	450.071	1.991	646	365	776
32	1	31	31	2	30	675.769	450.071	1.975	614	356	737
32	2	30	33	3	31	735.711	464.948	1.224	645	364	776
32	2	30	32	3	29	713.049	464.948	2.727	661	367	793
32	2	30	31	3	29	681.241	464.948	0.947	646	364	776
32	3	29	33	4	30	746.387	477.067	0.880	643	362	775
32	3	29	32	4	28	719.318	477.067	2.047	647	363	778
32	3	29	31	4	28	691.594	477.067	0.571	643	363	776
32	4	28	33	5	29	755.711	495.455	0.892	624	357	755
32	4	28	32	5	27	727.963	495.455	1.659	624	357	754
32	4	28	31	5	27	700.957	495.455	0.491	624	357	755
32	5	27	33	6	28	762.627	522.488	0.879	613	353	744
32	5	27	32	6	26	734.870	522.488	1.410	613	353	744
32	5	27	31	6	26	707.952	522.488	0.419	613	354	744
32	6	26	33	7	27	768.966	556.428	0.817	609	351	737
32	6	26	32	7	25	741.235	556.428	1.174	609	351	736
32	6	26	31	7	25	714.344	556.428	0.339	609	351	737
32	7	25	33	8	26	775.182	596.733	0.727	605	349	725
32	7	25	32	8	24	747.468	596.733	0.952	605	349	725
32	7	25	31	8	24	720.594	596.733	0.263	605	349	726
32	8	24	33	9	25	781.333	643.272	0.623	600	347	713
32	8	24	32	9	23	753.631	643.272	0.750	600	347	714
32	8	24	31	9	23	726.767	643.272	0.197	601	347	715
32	9	23	33	10	24	787.430	695.973	0.516	596	345	704
32	9	23	32	10	22	759.736	695.973	0.574	597	345	705
32	9	23	31	10	22	732.879	695.973	0.142	598	346	706
32	10	22	33	11	23	793.475	754.779	0.414	592	344	697
32	10	22	32	11	21	765.787	754.779	0.426	593	344	698
32	10	22	31	11	21	738.936	754.779	0.099	594	344	700
32	11	21	33	12	22	799.467	819.636	0.321	588	343	691
32	11	21	32	12	20	771.783	819.636	0.306	590	343	692
32	11	21	31	12	20	744.936	819.636	0.067	590	343	693
32	12	20	33	13	21	805.402	890.489	0.242	583	342	684

32	12	20	32	13	19	777.721	890.489	0.214	586	342	687
32	12	20	31	13	19	750.877	890.489	0.043	586	342	686
32	13	19	33	14	20	811.277	967.280	0.177	578	340	676
32	13	19	32	14	18	783.599	967.280	0.144	585	342	684
32	13	19	31	14	18	756.756	967.280	0.027	579	341	678
32	14	18	33	15	19	817.088	1049.949	0.125	570	339	667
32	14	18	32	15	17	789.411	1049.949	0.095	586	343	685
32	14	18	31	15	17	762.570	1049.949	0.017	569	338	665
32	15	17	33	16	18	822.830	1138.430	0.086	564	337	658
32	15	17	32	16	16	795.155	1138.430	0.060	591	344	689
32	15	17	31	16	16	768.315	1138.430	0.010	562	337	657
33	1	33	34	2	32	768.069	454.995	0.046	635	361	763
33	1	33	33	2	32	724.321	454.995	0.885	584	347	702
33	1	33	32	2	30	710.882	454.995	0.031	637	362	767
33	2	32	34	3	31	757.223	478.386	0.229	643	363	773
33	2	32	33	3	31	722.273	478.386	1.487	614	356	740
33	2	32	32	3	29	699.611	478.386	0.173	641	363	772
33	3	31	34	4	30	753.541	499.729	0.623	631	360	759
33	3	31	33	4	30	723.726	499.729	1.657	623	358	751
33	3	31	32	4	28	696.656	499.729	0.414	628	359	756
33	4	30	34	5	29	757.381	522.524	0.784	619	355	749
33	4	30	33	5	29	728.642	522.524	1.500	619	356	750
33	4	30	32	5	27	700.894	522.524	0.440	618	356	749
33	5	29	34	6	28	763.486	550.236	0.782	613	353	745
33	5	29	33	6	28	734.879	550.236	1.279	614	353	746
33	5	29	32	6	26	707.122	550.236	0.380	613	353	745
33	6	28	34	7	27	769.781	584.185	0.727	610	351	737
33	6	28	33	7	27	741.209	584.185	1.065	610	351	737
33	6	28	32	7	25	713.478	584.185	0.309	610	351	737
33	7	27	34	8	26	776.003	624.465	0.647	605	349	725
33	7	27	33	8	26	747.451	624.465	0.864	606	349	725
33	7	27	32	8	24	719.737	624.465	0.241	605	349	725
33	8	26	34	9	25	782.159	670.985	0.554	600	347	712
33	8	26	33	9	25	753.619	670.985	0.681	600	347	713
33	8	26	32	9	23	725.917	670.985	0.181	601	347	714
33	9	25	34	10	24	788.259	723.675	0.459	594	345	702
33	9	25	33	10	24	759.728	723.675	0.521	595	345	704
33	9	25	32	10	22	732.034	723.675	0.131	596	345	704
33	10	24	34	11	23	794.306	782.472	0.368	590	343	695
33	10	24	33	11	23	765.781	782.472	0.387	591	344	696
33	10	24	32	11	21	738.093	782.472	0.092	592	344	697
33	11	23	34	12	22	800.298	847.324	0.285	586	342	689
33	11	23	33	12	22	771.779	847.324	0.279	587	342	690
33	11	23	32	12	20	744.095	847.324	0.062	588	343	691
33	12	22	34	13	21	806.234	918.172	0.215	582	341	682
33	12	22	33	13	21	777.718	918.172	0.195	582	341	682
33	12	22	32	13	19	750.038	918.172	0.041	585	342	685
33	13	21	34	14	20	812.110	994.960	0.157	578	341	678
33	13	21	33	14	20	783.596	994.960	0.132	575	340	673
33	13	21	32	14	18	755.918	994.960	0.026	582	342	681
33	14	20	34	15	19	817.921	1077.627	0.114	576	340	675
33	14	20	33	15	19	789.410	1077.627	0.087	563	337	658
33	14	20	32	15	17	761.733	1077.627	0.016	581	341	680
33	15	19	34	16	18	823.664	1166.107	0.076	575	340	673

33	15	19	33	16	18	795.154	1166.107	0.055	548	333	637
33	15	19	32	16	16	767.478	1166.107	0.009	580	341	679
34	0	34	35	1	35	728.935	482.141	3.069	558	340	670
34	0	34	34	1	33	724.236	482.141	0.783	594	350	714
34	0	34	33	1	33	673.784	482.141	2.717	560	340	671
34	1	33	35	2	34	730.519	505.448	1.950	605	353	728
34	1	33	34	2	32	717.616	505.448	1.491	642	363	770
34	1	33	33	2	32	673.868	505.448	1.686	607	354	730
34	2	32	35	3	33	736.265	522.134	1.054	642	363	772
34	2	32	34	3	31	713.474	522.134	2.180	661	367	791
34	2	32	33	3	31	678.524	522.134	0.834	644	363	773
34	3	31	35	4	32	746.930	534.679	0.706	644	362	774
34	3	31	34	4	30	718.591	534.679	1.727	650	364	779
34	3	31	33	4	30	688.776	534.679	0.474	644	362	775
34	4	30	35	5	31	756.964	552.340	0.697	627	357	758
34	4	30	34	5	29	727.566	552.340	1.362	626	357	756
34	4	30	33	5	29	698.826	552.340	0.398	626	358	758
34	5	29	35	6	30	764.188	578.976	0.692	613	353	744
34	5	29	34	6	28	734.746	578.976	1.155	613	353	743
34	5	29	33	6	28	706.140	578.976	0.344	613	353	744
34	6	28	35	7	29	770.587	612.792	0.645	609	351	736
34	6	28	34	7	27	741.175	612.792	0.961	609	351	736
34	6	28	33	7	27	712.603	612.792	0.281	609	351	736
34	7	27	35	8	28	776.823	653.037	0.574	605	348	724
34	7	27	34	8	26	747.431	653.037	0.780	605	349	724
34	7	27	33	8	26	718.878	653.037	0.220	605	349	725
34	8	26	35	9	27	782.984	699.538	0.491	599	346	711
34	8	26	34	9	25	753.606	699.538	0.615	599	346	711
34	8	26	33	9	25	725.066	699.538	0.165	600	347	712
34	9	25	35	10	26	789.087	752.214	0.407	593	344	700
34	9	25	34	10	24	759.719	752.214	0.471	594	344	701
34	9	25	33	10	24	731.188	752.214	0.120	595	345	703
34	10	24	35	11	25	795.135	811.003	0.325	588	343	693
34	10	24	34	11	23	765.775	811.003	0.350	589	343	694
34	10	24	33	11	23	737.250	811.003	0.084	590	343	695
34	11	23	35	12	24	801.129	875.848	0.252	583	341	686
34	11	23	34	12	22	771.774	875.848	0.253	585	342	688
34	11	23	33	12	22	743.254	875.848	0.057	586	342	688
34	12	22	35	13	23	807.066	946.692	0.190	579	340	679
34	12	22	34	13	21	777.715	946.692	0.177	581	341	681
34	12	22	33	13	21	749.198	946.692	0.038	581	341	681
34	13	21	35	14	22	812.943	1023.477	0.138	573	339	672
34	13	21	34	14	20	783.594	1023.477	0.120	578	341	678
34	13	21	33	14	20	755.080	1023.477	0.024	575	340	673
34	14	20	35	15	21	818.755	1106.141	0.098	567	338	664
34	14	20	34	15	19	789.408	1106.141	0.079	579	341	678
34	14	20	33	15	19	760.896	1106.141	0.015	567	338	663
34	15	19	35	16	20	824.498	1194.618	0.067	561	336	655
34	15	19	34	16	18	795.152	1194.618	0.050	584	342	682
34	15	19	33	16	18	766.642	1194.618	0.009	559	336	653
35	1	35	36	2	34	773.309	510.147	0.032	630	359	758
35	1	35	35	2	34	725.820	510.147	0.683	579	346	700
35	1	35	34	2	32	712.917	510.147	0.021	633	360	762
35	2	34	36	3	33	761.656	535.037	0.148	642	362	772

35	2	34	35	3	33	723.362	535.037	1.159	610	355	737
35	2	34	34	3	31	700.572	535.037	0.111	642	362	773
35	3	33	36	4	32	756.203	557.469	0.445	633	360	762
35	3	33	35	4	32	724.140	557.469	1.324	621	357	749
35	3	33	34	4	30	695.801	557.469	0.306	629	359	759
35	4	32	36	5	31	759.124	580.679	0.603	619	355	748
35	4	32	35	5	31	728.625	580.679	1.215	619	355	750
35	4	32	34	5	29	699.227	580.679	0.350	619	355	748
35	5	31	36	6	30	765.087	608.374	0.609	614	353	745
35	5	31	35	6	30	734.789	608.374	1.037	614	353	746
35	5	31	34	6	28	705.348	608.374	0.309	614	353	745
35	6	30	36	7	29	771.400	642.233	0.569	609	350	735
35	6	30	35	7	29	741.146	642.233	0.863	610	351	736
35	6	30	34	7	27	711.734	642.233	0.253	609	351	736
35	7	29	36	8	28	777.641	682.449	0.506	605	348	723
35	7	29	35	8	28	747.410	682.449	0.700	605	348	724
35	7	29	34	8	26	718.019	682.449	0.199	605	348	724
35	8	28	36	9	27	783.807	728.930	0.434	598	346	710
35	8	28	35	9	27	753.592	728.930	0.553	599	346	711
35	8	28	34	9	25	724.215	728.930	0.150	599	346	711
35	9	27	36	10	26	789.913	781.592	0.359	592	344	699
35	9	27	35	10	26	759.709	781.592	0.424	593	344	700
35	9	27	34	10	24	730.341	781.592	0.110	594	344	701
35	10	26	36	11	25	795.964	840.371	0.287	587	342	691
35	10	26	35	11	25	765.768	840.371	0.315	588	343	692
35	10	26	34	11	23	736.407	840.371	0.077	588	343	693
35	11	25	36	12	24	801.960	905.209	0.222	582	341	684
35	11	25	35	12	24	771.769	905.209	0.228	583	341	685
35	11	25	34	12	22	742.413	905.209	0.053	584	342	687
35	12	24	36	13	23	807.898	976.048	0.167	577	340	677
35	12	24	35	13	23	777.711	976.048	0.160	577	340	677
35	12	24	34	13	21	748.359	976.048	0.035	580	341	680
35	13	23	36	14	22	813.775	1052.828	0.122	574	339	672
35	13	23	35	14	22	783.591	1052.828	0.108	571	339	670
35	13	23	34	14	20	754.242	1052.828	0.022	576	340	676
35	14	22	36	15	21	819.587	1135.490	0.086	571	339	669
35	14	22	35	15	21	789.406	1135.490	0.072	562	337	657
35	14	22	34	15	19	760.059	1135.490	0.014	575	340	674
35	15	21	36	16	20	825.331	1223.965	0.059	571	339	667
35	15	21	35	16	20	795.151	1223.965	0.046	548	333	638
35	15	21	34	16	18	765.805	1223.965	0.008	576	340	674