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ANL/NDM-51

Measured and Evaluated Neutron Cross Sections of Elemental Bismuth

by

A. Smith, P. Guenther, D. Smith, J. Whalen, and R. Howerton

April 1980

ARGONNE NATIONAL LABORATORY,
ARGONNE, ILLINOIS 60439, U.S.A.

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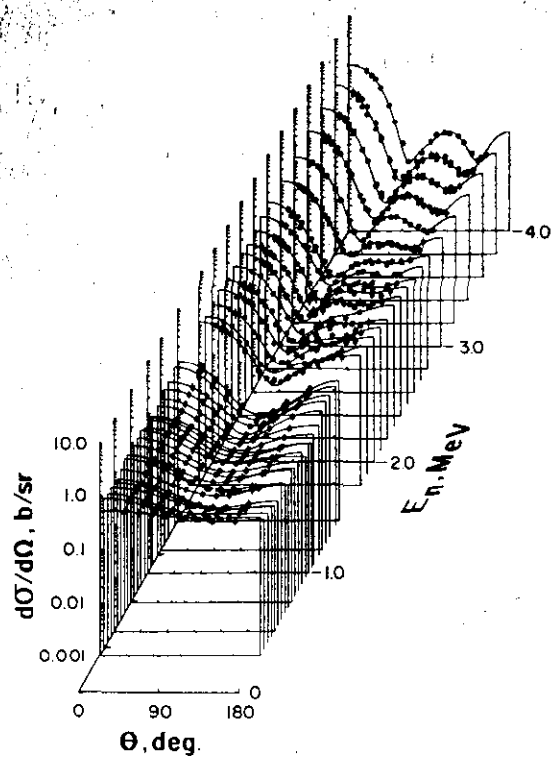

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MEASURED AND EVALUATED NEUTRON CROSS SECTIONS OF ELEMENTAL BISMUTH*

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and

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ABSTRACT

Neutron total cross sections of elemental bismuth are measured with broad resolution from 1.2 to 4.5 MeV to accuracies of ≈1%. Neutron-differential-elastic-scattering cross sections of bismuth are measured from 1.5 to 4.0 MeV at incident neutron energy intervals of $\lesssim$0.2 MeV over the scattered-neutron angular range ≈20-160 deg. Differential neutron cross sections for the excitation of observed states in bismuth at 895 ± 12, 1606 ± 14, 2590 ± 15, 2762 ± 29, 3022 ± 21 and 3144 ± 15 keV are determined at incident neutron energies up to 4.0 MeV. An optical-statistical model is deduced from the measured values. This model, the present experimental results and information available elsewhere in the literature are used to construct a comprehensive evaluated nuclear data file for elemental bismuth in the ENDF format. The evaluated file is particularly suited to the neutronic needs of the fusion-fission hybrid designer.

*This work supported by the U. S. Department of Energy.

I. INTRODUCTION

It has been suggested that the fusion-fission hybrid concept represents a nuclear-energy system of considerable potential.[1] One aspect of the strategy of such systems is the production of fissile fuel for subsequent burning in LWR or other conventional fission reactors. In this concept the hybrid itself is largely free of fission products with their attendent problems while, at the same time, it provides a rich source of fissile material. With this concept neutron economy is essential and means to multiply the intensity of the primary fusion-neutron source are sought. It has been suggested that one alternative is a bismuth blanket about the primary fusion source as the very large bismuth (n;2n) cross section provides an effective "eta" approaching that of a fissionable multiplier.[2] In addition, bismuth and its alloys have attractive low-melting points and heat-transfer properties.

The above concepts have not been widely examined due to the unavailability of a generally-accepted bismuth evaluated data file for use in neutronic calculations. The provision of such a file is impeded by the sparsity of microscopic nuclear data upon which to base it. The present work was undertaken with the objective of providing the requisite comprehensive evaluated data file in the widely-used ENDF format. As a part of this effort basic microscopic nuclear-data measurements and associated interpretations were undertaken in order to strengthen the essential physical foundation. Subsequent portions of this paper address; a) the microscopic measurement program, techniques, results and interpretation (Secs. II and III), and b) the derivation of the comprehensive evaluated nuclear-data file for bismuth, focused on the needs of the fusion-fission hybrid designer (Sec. IV).

II. EXPERIMENTAL METHODS

A. Measurement Samples

The measurement samples were machined into right circular cylinders from ingots of chemically pure elemental bismuth. Two transmission samples were used, each having a diameter of 2.5 cm. The lengths were 2 cm and 4 cm. Neutrons passed through the samples in the axial direction. The scattering samples were 2 cm in diameter and 2 cm long with neutrons incident upon the lateral surface. It was assumed that the samples were of uniform density and this assumption was supported by the consistency of the results obtained with different samples.

B. Neutron Total Cross Section Measurements

The neutron total cross sections were deduced from the measured transmissions of approximately monoenergetic neutrons through the measurement samples in a conventional manner.[3] The neutron source was the $^{7}Li(p,n)^{7}Be$ reaction. The neutron energy was determined to within 10 keV by control of the incident proton beam. Neutrons were detected using conventional pulsed-beam time-of-flight techniques in such a manner as to provide suitable control of background and source perturbations. Concurrent measurements of the neutron total cross sections of elemental carbon assured the fidelity of the measurement system. The details of the method and the particular apparatus have been described extensively elsewhere.[4]

C. Neutron Scattering Cross Section Measurements

The neutron scattering measurements were made using the pulsed-beam time-of-flight technique and the 10-angle scattering apparatus at the Argonne Fast Neutron Generator.[5] Again, the neutron source was the $^{7}Li(p,n)^{7}Be$ reaction. Scattered-neutron flight paths were 5.0 to 5.5 m. Relative sensitivities of the hydrogenous neutron detectors were determined by observation of neutrons emitted at the spontaneous fission of ^{252}Cf.[6] The normalization of the relative detector sensitivities was determined by the observation of neutrons scattered from hydrogen (in a polyethylene sample). Thus all of the measured neutron scattering cross sections were determined relative to the well known H(n,n) cross sections.[7] Concurrent with the bismuth measurements, carbon-scattering cross sections were determined in order to verify the performance of the measurement system. The experimental results were corrected for perturbations due to beam attenuation, multiple events and the angular resolution of the apparatus using a combination of monte-carlo and analytical computational techniques. The details of the measurement apparatus and procedures, the data reduction, and the correction procedures have been described extensively elsewhere.[8]

III. EXPERIMENTAL RESULTS

A. Neutron Total Cross Sections

The objective of the experimental measurements was the determination of energy-averaged total cross sections comparable with the differential scattering measurements (below), with the predictions of energy-averaged models, and with the evaluated data sets. The measurements extended from $\approx$1.2 to 4.5 MeV in steps of $\lesssim$50 keV. Incident-neutron energy resolutions were 35-50 keV. The measurements were made in a redundent manner with repeated sweeps over the experimental energy range using the two measurement samples outlined above. The statistical accuracies of the individual measured values were in the range of 1-3%. Systematic uncertainties are believed to be much smaller. The thick-sample (i.e. 4-cm) results were averaged over intervals of the 100 keV to obtain the final results shown in Fig. 1. The associated uncertainties were $\approx$1%. These results were in good agreement with similar averages constructed from the thin-sample (i.e. 2 cm) results also shown in Fig. 1. It was concluded that sample-size-perturbation effects must have been small (i.e. $\lesssim$1%).[4]

The present measured values are in good agreement with the previously reported results of Refs. 9 to 12 as illustrated by the comparisons in Fig. 1. The differences between equivalent averages constructed from the various data sets is $\lesssim$2% throughout the range of the present experiment.

B. Neutron Elastic-scattering Cross Sections

The measurements were made over a number of years with various incident energies, energy resolutions, scattering angles and accuracies. Data, measured over the incident-energy range $\approx$1.5 to 4.0 MeV, were sorted into incident-energy intervals of $\leq$100 keV and combined to obtain composite angular distributions at the mean energy of the sorting interval. This procedure assumed that the cross sections did not vary significantly over the 100 keV

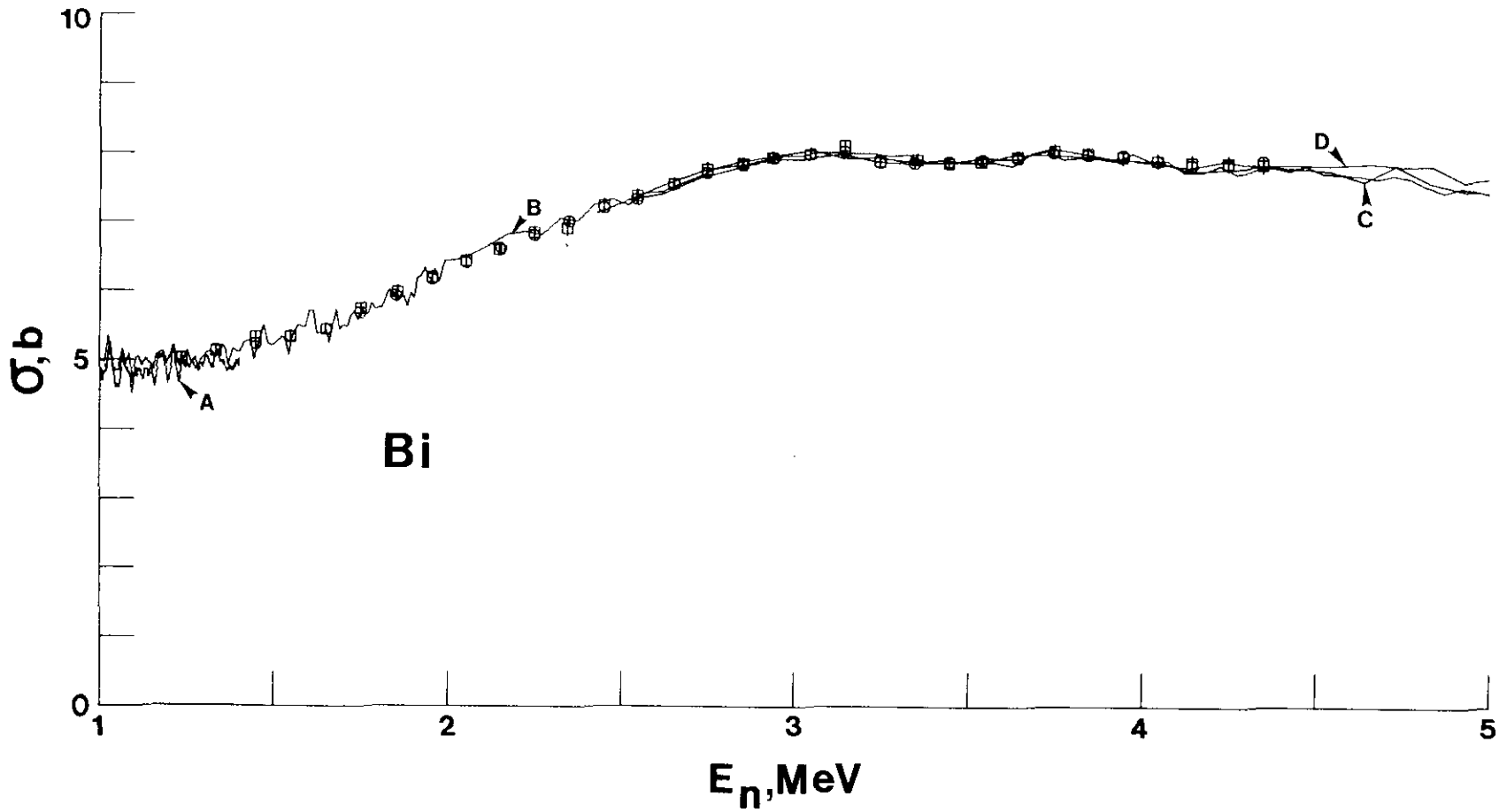

Fig. 1. Measured neutron total cross sections of elemental bismuth. The present results are indicated by circular and square data points. Curves indicate previously reported values as follows; A = Ref. 9, B = Ref. 10, C = Ref. 12 and D = Ref. 11.

intervals. The assumption is very good at the higher measured energies but somewhat less suitable at the lowest measured energies where fluctuations are clearly evident in the total-neutron cross section (see Fig. 1). The incident-neutron resolutions varied from ≈20 to 50 keV and the scattered neutron resolutions were sufficient to clearly distinguish the elastic-neutron group from all known inelastic-neutron components. The individual measurements involved the concurrent determination of ten or twenty differential values distributed over the angular range ≈20 to 160 deg. The relative scattering angles were known to ± 0.5 deg. and the absolute angular scale was determined to ≈1.0 deg. The accuracies of the individual differential values varied depending upon the care taken during the particular measurement. In the best cases the differential-cross-section uncertainties were ≈5% and in the poor cases ≈10%. The uncertainties for the majority of the values were in the range 6 to 8%. The uncertainty in the H(n,n) reference standard was a small factor; i.e. $\lesssim$1%. Statistical measurement uncertainties were generally in the range 1 to 5%. A major experimental uncertainty was that of the detector-sensitivity calibrations. The latter were generally determined to within 3 to 4% but in some of the measurements the uncertainties were larger. Uncertainties attributed to correction procedures were relatively small, i.e. 1 to 3%. A measure of the validity of these uncertainties was the consistency of the results obtained over a several-year period with various experimental configurations.

The experimental results are summarized in Fig. 2 and some more detailed examples are shown in Fig. 3. In some of the lower-energy cases there appeared to be systematic differences between distributions obtained at widely separated times and subsequently combined to form the composite distributions of Fig. 2. These differences could easily be expected from the fluctuations evident in the neutron total cross sections (as noted above). Even so, the results are generally consistent to well within the respective uncertainties. The angle-integrated neutron elastic-scattering cross sections were obtained from fitting an eight-order Legendre-polynomial series by least-squares to the measured differential values. The resulting angle-integrated cross sections are believed known to ≈5%. They were consistent with the measured neutron total and inelastic-scattering cross sections to well within the respective experimental uncertainties.

The present measured values can be compared with the few previously-reported results as illustrated in Fig. 3. The agreement with the relatively-extensive set of data reported by Tanaka et al.[13] is generally very good. The lower-energy (i.e. 1.5 MeV) values of the present work extrapolate very nicely to the somewhat lower-energy values ($\bar{E}$= 1.45 MeV) of Smith et al.[9] There is good agreement with the single distributions of Beyster et al.[14], Gordov et al.[20], and Becker et al.[15] The results of Pasechnik et al.[16], Popov[17], Brugger et al.[18] and Snowdon et al.[19] are not particularly consistent with those of the present work.

C. Neutron-inelastic-scattering Cross Sections

The inelastic neutron scattering measurements were made concurrently with the above neutron elastic-scattering determinations. Differential-cross-section measurements were made over the same scattered-neutron angular range of ≈20-160 deg. A total of six inelastically-scattered neutron

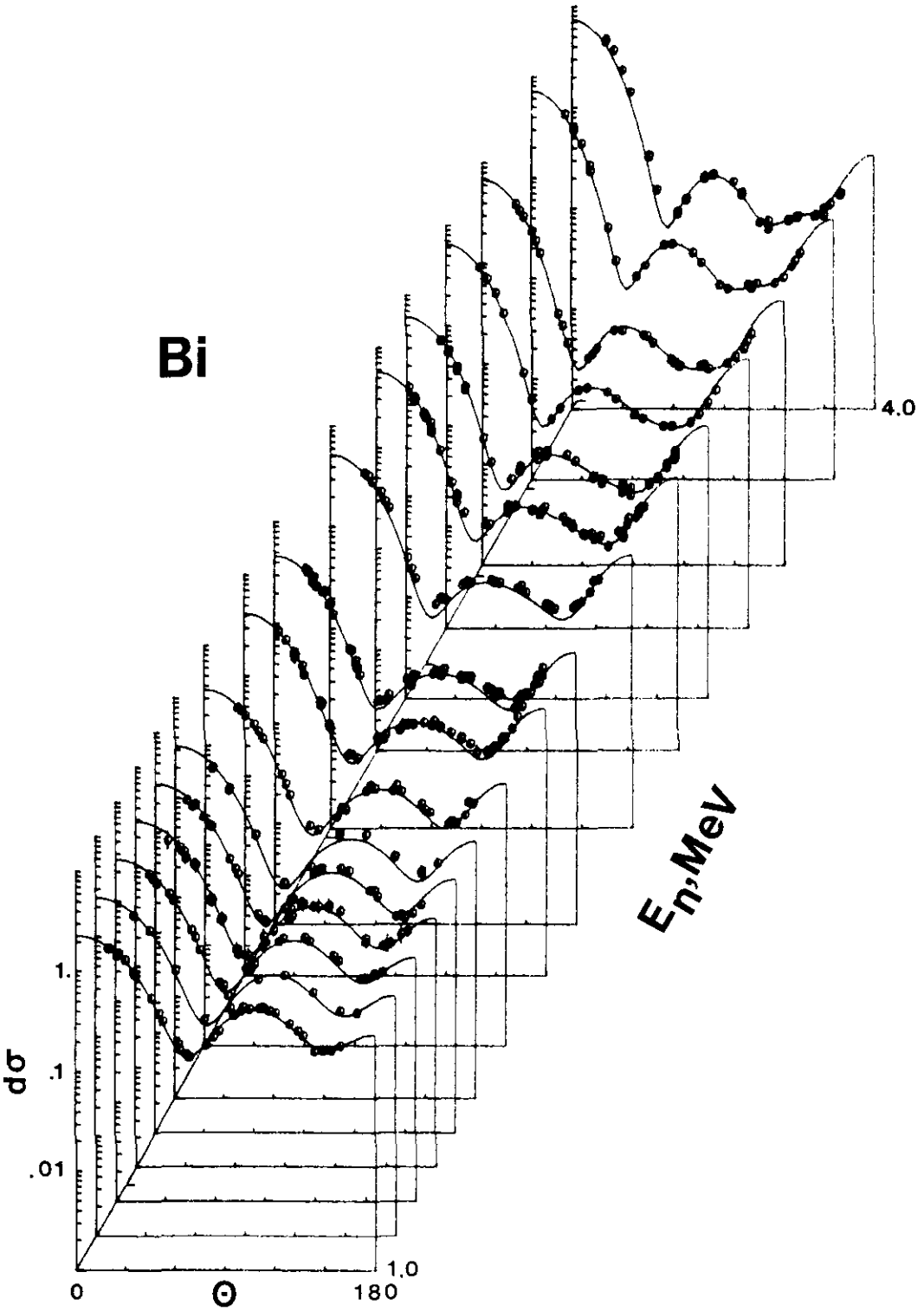

Fig. 2. Differential elastic-scattering cross sections of elemental bismuth. The present measured values are indicated by data points. Curves denote the results of model calculations as discussed in the text.

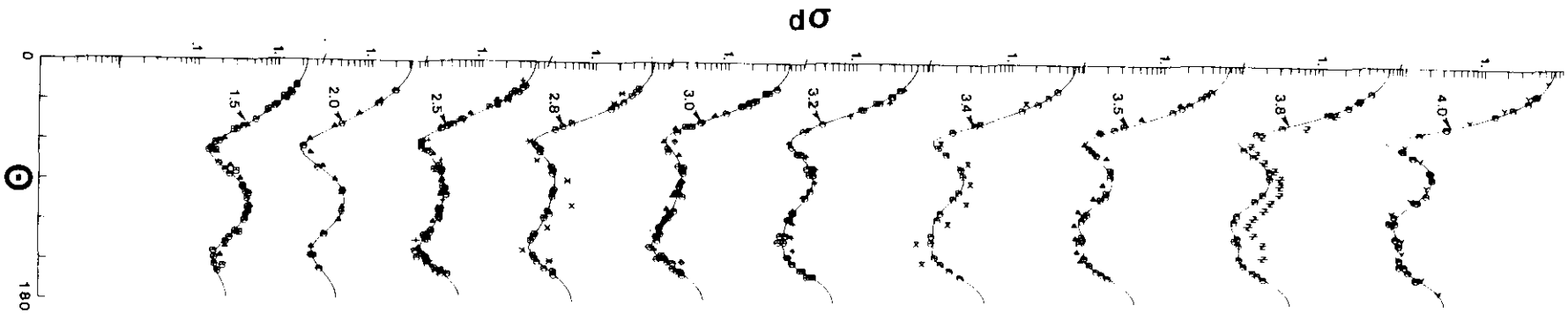

Fig. 3. The present bismuth elastic-scattering results compared with those reported in the literature. The present experimental results are denoted by circular data points. Curves are "eye-guides" through the present results. Results reported in the literature are denoted by symbols as follows; ◁ Ref. 13, □ = Ref. 2, ⊃ = Ref. 20, + = Ref. 14, ◁— = Ref. 15, X = Ref. 16, ◇ = Ref. 17, ⋈ = Ref. 18 and Z = Ref. 19. Incident energies of the present work are given in MeV. Results taken from the literature may be at somewhat (e.g. < 100 keV) different energies. differential cross section is given b/sr and scattering angle in lab-deg.

groups was observed at a number of incident energies and scattering angles. The corresponding excitation energies were determined from the measured flight times, flight paths and incident neutron energies. Average excitation energies were determined from the individual measured values and the corresponding uncertainties defined as the RMS deviation of the individual values from the average. The resulting excitation energies are summarized in Table I. A comparison of these measured values with the levels reported in the literature[21] indicated that the first two excitations corresponded to descrete levels while the remainder were the result of contributions from a number of previously reported levels.

All of the observed differential-inelastic-neutron distributions were essentially isotropic. The angle integrated inelastic-neutron cross sections corresponding to the various excitations were determined by least-square fitting the observed differential distributions with low-order legendre-polynomial expansions (e.g. with second-order expansions). The resulting angle-integrated cross sections are shown in Fig. 4. The respective uncertainties were governed by the same factors applicable to the elastic-scattering measurements. In addition, the experimental resolution was not complete in those cases where the observed neutron group consisted of a number of closely-spaced components. The effect of the incomplete resolution was subjectively included in the overall uncertainty estimates shown in Fig. 4. The resulting uncertainties are probably conservative judged by the reproducibility of values obtained over a period of years. In the best cases the uncertainties associated with the angle-integrated inelastic-scattering cross sections were in the 5-10% range with the larger uncertainties in those cases where the definition of the inelastically-scattered neutron groups was less suitable. The cross sections were generally accepted to within 500-800 keV of threshold. Values obtained nearer to threshold were abandoned as they were often sensitive to the details of the response functions of the detectors. Beyond the experimental uncertainties associated with the measurements there maybe some residual effects from the physical fluctuations evident, for example, in high-resolution neutron total cross section measurements.[10]

There are a few previously-reported experimental results that can be compared with the present experimental values. The present work extrapolates reasonably well to the lower-energy results of Smith et al.[9] and of Tanaka et al.[13] and to the higher-energy values of Weddell.[22] The present work is in relatively good agreement with the values of Degtyarev et al.[23] and, to a lesser extent, with the results of Cranberg and Levin.[24] The present results are not consistent with the results of Eliot et al.[25]

IV. INTERPRETATIVE MODEL

The objective was the deduction of an optical-statistical model suitable for extrapolating and interpolating the present measurements particularly for the formulation of a comprehensive evaluated file. A simple spherical model was assumed. This assumption is reasonably justified as ^{209}Bi consists of only one proton added to the doubly-closed shell at A=208. Throughout the energy range of the present experiments compound-nucleus processes were a consideration. These were calculated using the procedures of Moldauer.[26] In doing so the excitation of states to energies of ≈3.0 MeV was explicitly

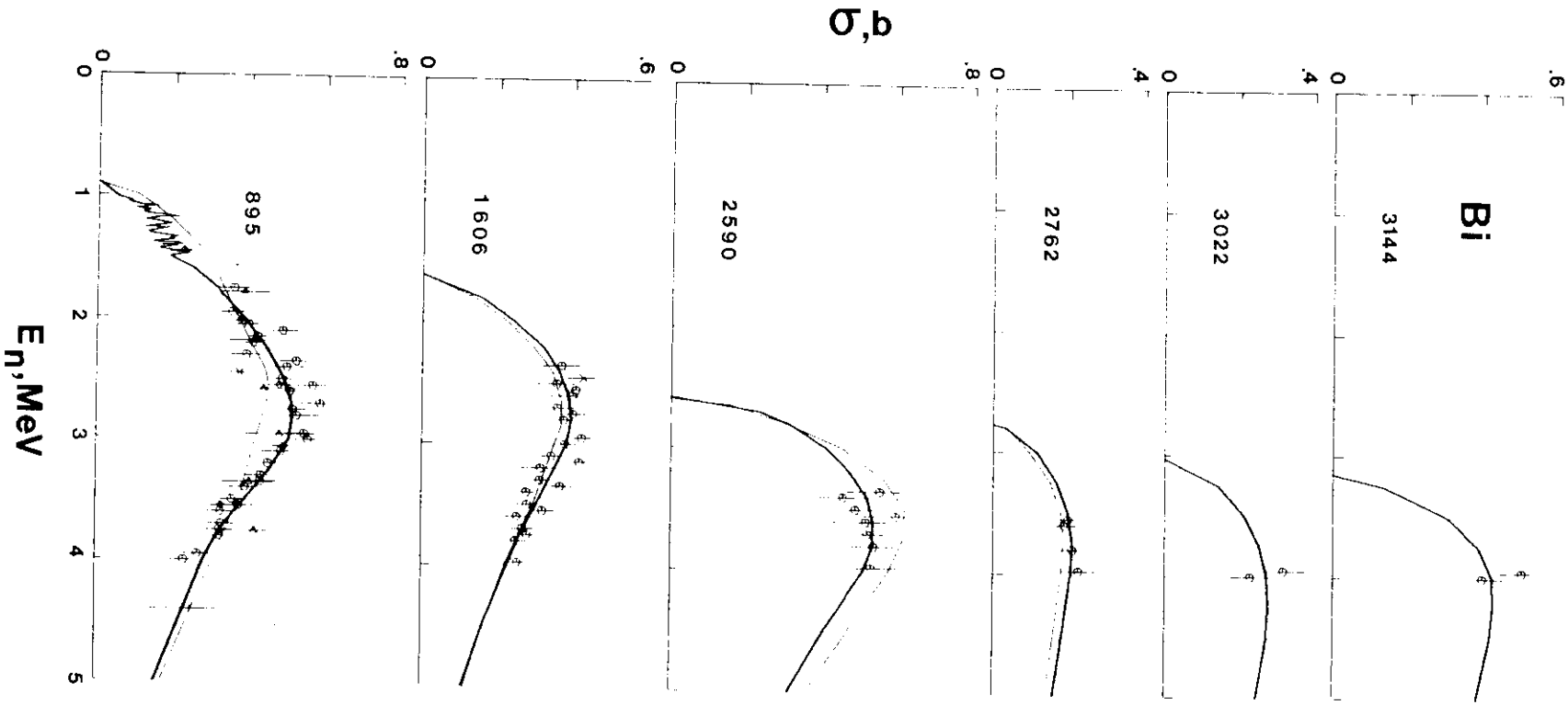

Fig. 4. Inelastic-neutron excitation cross sections of bismuth. The present experimental results are indicated by circular data points. The corresponding observed excitation energies are given in each section of the figure in keV. The heavy curves are "eye-guides" constructed through the available experimental information. The light curves indicate the result of model calculations as described in the text. Previously reported experimental values are denoted by symbols referenced as follows: D = Ref. 23, + = Ref. 22, X = Ref. 24, and ◇ = Ref. 13.

TABLE I. Observed Inelastic-Neutron Excitation Energies of Bismuth

Group No.	E_x(keV)	E_x(keV), reported[a]
1	895 ± 12[b]	897 (7/2-)
2	1606 ± 14	1609 (13/2+)
3	2590 ± 15	2492 (3/2+) 2563 (9/2+) 2582 (7/2+) 2599 (11/2+) 2601 (13/2+) 2616 (5/2+)
4	2762 ± 29	2741 (15/2) 2822 (5/2-) 2827
5	3022 ± 21	2910 2957 2987 3038
6	3144 ± 15	3091 3116 3135 3154 3170

[a]Previously reported energies and Jπ values taken from compilation of Ref. 21.

[b]Experimental uncertainties are relevant to mean energies and not necessarily experimental resolution (see text).

treated using the spin and parity assignments of Ref. 21 as outlined in Table I. Where no explicit assignment was given, estimates were made. The excitation of higher-energy levels was treated as a statistical continuum following the concepts of Gilbert and Cameron.[27] The calculations were carried out using the computer program ABAREX-2.[28]

The choice of model parameters was based entirely upon the measured differential-elastic-scattering cross sections. The preliminary selection was obtained by chi-square fitting the observed elastic scattering at incident neutron energies of $\lesssim$3.0 MeV. Each distribution was fitted by varying the six parameters; real and imaginary strengths, radii and diffusenesses. The results of the preliminary fitting procedure were used to fix the two diffusenesses and the fitting procedures were repeated using only the remaining four parameters over the full measured energy range 1.5 to 4.0 MeV. The resulting parameters were very consistent to energies of $\approx$3.1 MeV but then began to diverge progressively from the lower-energy values as the energy increased to 4.0 MeV. This discrepancy was resolved by increasing the temperature of the continuum component from that given in Ref. 27 by a factor of two, to 1.6 MeV. Such energy-local variations are reasonable at low energies, particularly in the present application where the observed neutron total cross sections suggest fluctuating structure well into the MeV region. There were also some small adjustments in the spin-orbit strength to improve the agreement between large-angle measured and calculated values near 4.0 MeV. The parameter values for the final potential are summarized in Table II.

The above potential provides a quantitative description of the measured differential elastic-scattering cross sections as illustrated in Fig. 2. There are some deviations between measured and calculated values at a few and, primarily, lower energies. This is not surprising as the total cross section shows fluctuating structure into the several MeV region that was not clearly averaged in the elastic-scattering measurements. Even with this uncertainty $\gtrsim$80% of the measured values agree with the calculated results to within the estimated experimental uncertainties. The calculated neutron total cross sections agree with the measured values throughout the present experimental range to within $\lesssim$3%. The largest differences are in the region of 2.5 to 3.0 MeV where the calculated values are systematically lower than the measured quantities by $\approx$3%. This is a peculiar energy region where the neutron total cross section, as observed in three entirely independent measurements displays an unusual and broad structure with a periodicity of several hundred keV as shown in Fig. 1. The present model cannot reproduce such structure and it is in the same energy region where the measured and calculated elastic-scattering distributions are somewhat different. These broad fluctuations appear to be a widely observed physical phenomena which is beyond the scope of the present interpretation.

The present potential is very similar to that derived by Zafiratos et al.[29] from higher energy measurements. The real strengths (Vr^2) differ by $\approx$5%. Both have absorption radii larger than the real radius. Thus it is not surprising that the present potential reasonably describes the measured values of Ref. 29 and even this agreement can be improved by introducing a modest energy dependence of the present real strength. Such an energy dependence was not clearly indicated by the interpretation of the present

TABLE II. Spherical Optical-Model Parameters

Real Potential[a]	
Strength (V)	= 43.296 MeV
Radius $(R_o^v)^b$	= 1.300 F
Diffuseness (a^v)	= 0.58 F
VR_o^2	= 73.17 MeV · F^2
Imaginary Potential[c]	
Strength (W)	= 11.91 MeV
Radius (R_o^w)	= 1.320 F
Diffuseness (a^w)	= 0.20 F
Wa^w	= 2.382 MeV · F
Spin-orbit Potential[d]	
Strength (V_{so})	= 4.35 MeV

[a]Saxon form.[30]

[b]All radii given in the form $R = R_o A^{1/3}$.

[c]Saxon derivative form.[30]

[d]Thomas form.[30]

experiments alone. The present potential is also in reasonable agreement with potentials derived from lower-energy measurements; for example, that of Smith et al.[9] In the latter example the real strength differs from that of the present work by <2%. There is similar reasonable agreement between the strengths of the present potential and that given by Tanaka et al.[13]

In view of the above, the present potential was accepted as an adequate basis for subsequent interpretations of neutron inelastic scattering and for the extrapolations and interpolations requisite to the comprehensive evaluation of Sec. V, below.

The calculation of neutron-inelastic-scattering cross sections using the above model was very much inhibited by a lack of knowledge of the spins and parities of the levels involved (e.g. see Table I). Only the first two observed inelastically-scattered neutron groups can be clearly associated with well defined states. The third group appears to be a composite of contributions from at least six reported levels the spins and parities of which are said to be known.[21] The level structure contributing to the remaining three observed neutron groups is very uncertain. Given this marginal situation only the excitation of the first four observed groups was explicitly calculated and the higher energy excitations were lumped into the continuum contribution. The results of the calculations are compared with the measured values in Fig. 4. Generally the calculated results agree with the measured values to within at least 10-20% and in some cases the agreement is much better. Again, the incident energy region 2.5-3.0 MeV, that where the neutron total cross section is somewhat anomolous, tends to be a problem area. The excitation of the third group is somewhat over-predicted, possibly suggesting some uncertainty in the reported spins and parities of the underlying levels. However, the calculated inelastic-scattering cross sections were considered acceptable and suitable for subsequent use in the extrapolations requisite to the evaluation of Sec. V, below.

V. EVALUATION

Throughout this evaluation the emphasis was on an evaluated data file for high-energy (e.g. fusion-fission hybrid) applications. Therefore, while attention was given to low-energy resonance properties, they were not dealt with in great detail and, in particular, the resonance region is described by point-wise data rather than resonance parameters. Those particularly interested in resonance parameters should consult Ref. 31. The file, in the ENDF format, is given in the Appendix and has been transmitted to the National Nuclear Data Center, Brookhaven National Laboratory.

A. Neutron Total Cross Sections

Below 100 keV the available good-resolution data is largely confined to the work of the Columbia Group, i.e. Singh et al.[32] Other reported experimental information is of far less resolution and/or scope. Therefore the evaluation was constructed from the results of Ref. 32 in this energy region.

From 0.1 to 0.2 MeV the experimental data base consisted of the good resolution results of Singh et al.[32] and of Nichols et al.[33] Broad resolution results are very consistent and, at the higher-energy limit of the range, systematically lower than the good resolution results of Ref. 32 but the work of Ref. 32 does appear to have the best resolution. Therefore, the evaluation was taken from Ref. 32 with its good-resolution measured values renormalized to bring them into qualitative agreement with the broad resolution results of Refs. 34 and 35.

From 0.2 to 0.5 MeV the data base consisted of the high resolution results of Cierjacks et al.[10] Above 0.42 MeV, the moderate resolution results of Smith et al.[9] and the broad resolution results of Refs. 34 and 35. On the average, all of the results were reasonably consistent; therefore the best resolution results were used for the evaluation. To energies of 0.42 MeV the evaluation was constructed from selected values taken from Ref. 9. At higher energies, a 1-keV average of the results of Ref. 10 was used. There was a considerable variation in the resolution across this energy interval but that appears unavoidable given the limited data base.

The data base over the energy region 0.5-1.0 MeV consisted of the high resoluton results of Cierjacks et al.[10], the moderate resoluton results of Smith et al.[9], the broad resolution results of Divadeenam[35] and three broad resolution values reported by Day.[36] The latter were too sparse to make any substantive impact on the evaluation. The results of Cierjacks et al. and of Smith et al. are in good agreement excepting small shifts in energy scale. The Divadeenam results are fairly consistent with those of Cierjacks et al. and Smith et al. The Cierjacks et al. results have the best resolution and therefore were used for the evaluation. They were averaged over 1-keV intervals from 0.5 to 0.75 MeV and over 2-keV intervals from 0.75 to 1.0 MeV. These averaging procedures only slightly truncated the resolution of the original measured values while, at the same time, they reduced the number of data points to a manageable number.

The evaluated neutron total cross sections from 1.0 to 20.0 MeV were based upon the present results, those of Cierjacks et al.[10], of Carlson and Barschall[12] and of Foster and Glasgow.[11] From 1.0 to 2.0 MeV a 10 keV average of the results of Cierjacks et al. was used. This average portrays some of the observed structure while, on the average, being consistent with the broader resolution results of the present work. From 2.0 to 5.0 MeV the evaluation relies upon the results of the present work. The latter are consistent with the results of Cierjacks et al., Carlson and Barschall and of Foster and Glasgow. Above 5.0 MeV the evaluation follows the results of Cierjacks et al., Foster and Glasgow and of Carlson and Barschall. The latter three sets of measurements are consistent with one another. Throughout, the detail is chosen to follow intermediate structure effects to 2.0 MeV and the energy-averaged behavior at higher energies. Data from a number of other experimental studies were inspected and abandoned as being either discrepant or because of relatively large experimental uncertainties. An exception was the isolated value at ≈17 MeV by Peterson et al.[37] that supported the broader-scope data set of Cierjacks et al. The results of the above evaluation are outlined in Fig. 5.

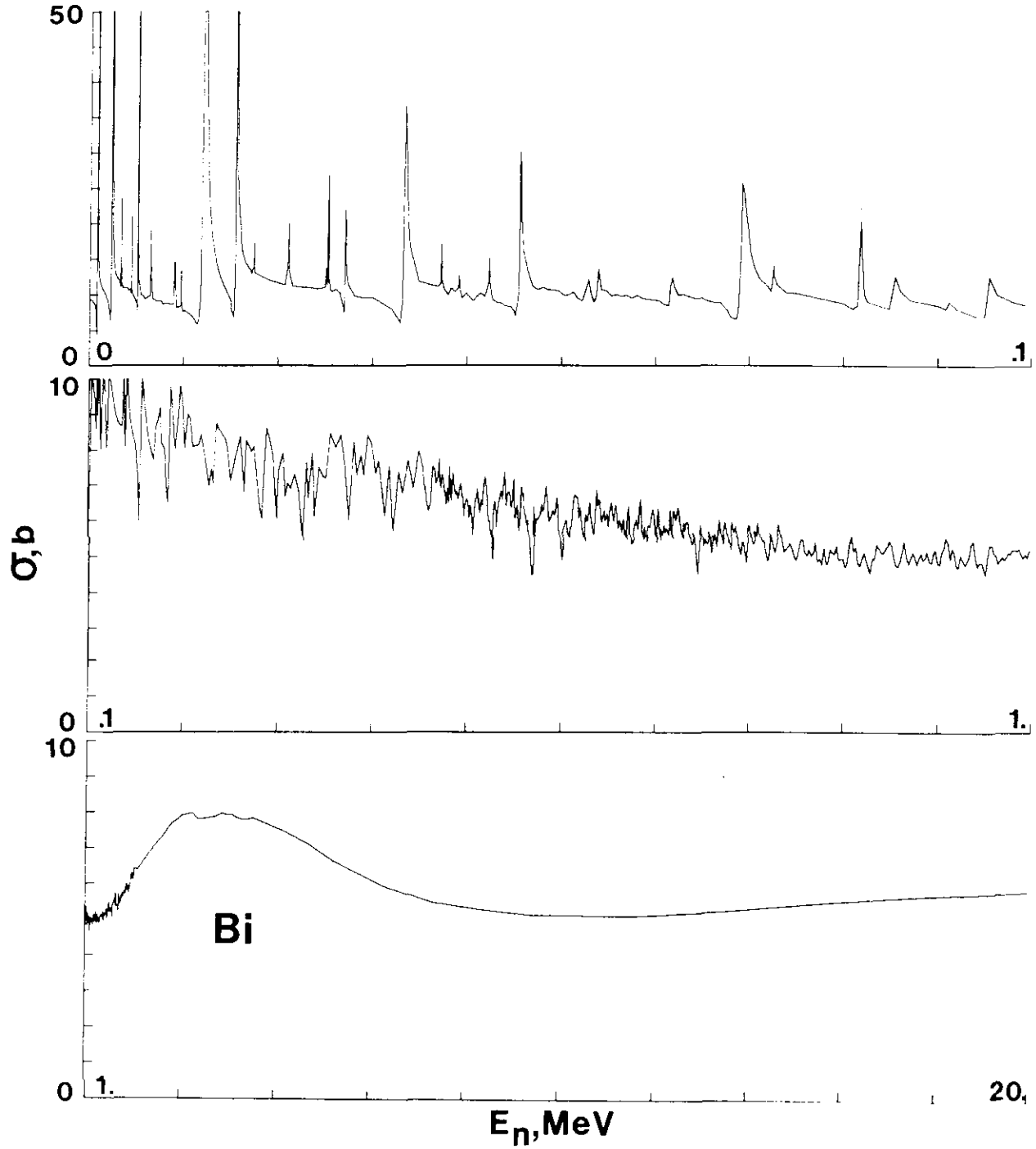

Fig. 5. Evaluated Neutorn Total Cross Sections of Elemental Bismuth.

Some qualitative guidelines as to the accuracies of the above evaluated-neutron-total cross sections are: 10-20% below 100 keV, 5-10% from 0.2-0.5 MeV, 2-5% from 0.5-1.5 MeV, 1-2% from 1.5-5.0 MeV, and 2-5% from 5-20 MeV. These estimates reflect subjective judgments of the quality of the underlying data base and consideration of such matters as resonance self-shielding at lower energies.

B. Neutron Elastic-scattering Cross Sections

For neutron energies of $\lesssim$3.0 MeV the elastic-scattering cross sections were dictated by the differences between evaluated neutron total cross sections and the non-elastic cross sections. At higher energies not all of the partial cross sections are well known and thus the evaluated elastic-scattering cross sections were based upon the predictions of the above model, slightly adjusted to bring exact agreement with the evaluated neutron total cross sections and to improve the agreement with the measured differential elastic-scattering distributions of Holmqvist and Weidling[38] and of Zafaritos et al.[29] The resulting evaluated neutron elastic-scattering cross sections were believed known to $\lesssim$5% throughout the energy range of the evaluation.

The relative neutron-elastic-scattering distributions were determined from measured values below 4.0 MeV. The results of Langsdorf et al.[39] were used below 0.3 MeV, those of Smith et al.[9] from 0.3 to 1.5 MeV, and the measured values of the present work from 1.5 to 4.0 MeV. Above 4.0 MeV the relative angular distributions were obtained from the above adjusted model results. Throughout, consistency with Wick's Limit[40] was assured. At very high energies the large-angle details of the angular distributions may not be exact but this is of little consequence for most applications as the cross sections are largely concentrated toward small scattering angles at very high energies.

The resulting evaluated differential elastic-scattering cross sections are shown in Fig. 6.

C. Neutron Inelastic-scattering Cross Sections

The discrete-neutron-evaluated-inelastic-scattering cross sections were based upon the six observed neutron groups defined in Table I. The evaluation followed the eye-guides of Fig. 4 which are consistent with the experimental data base as outlined above. Model calculations were used to extrapolate the measured results from 4-5 MeV to 10 MeV where the individual excitation cross sections were assumed to be zero. The latter assumption was consistent with marginal experimental evidence and model estimates gave very small cross section values. The first four excitation functions are believed known to 10% to 5 MeV. The remaining two and the higher-energy portions of all the individual excitation functions are more uncertain as primary reliance had to be placed upon calculational estimates.

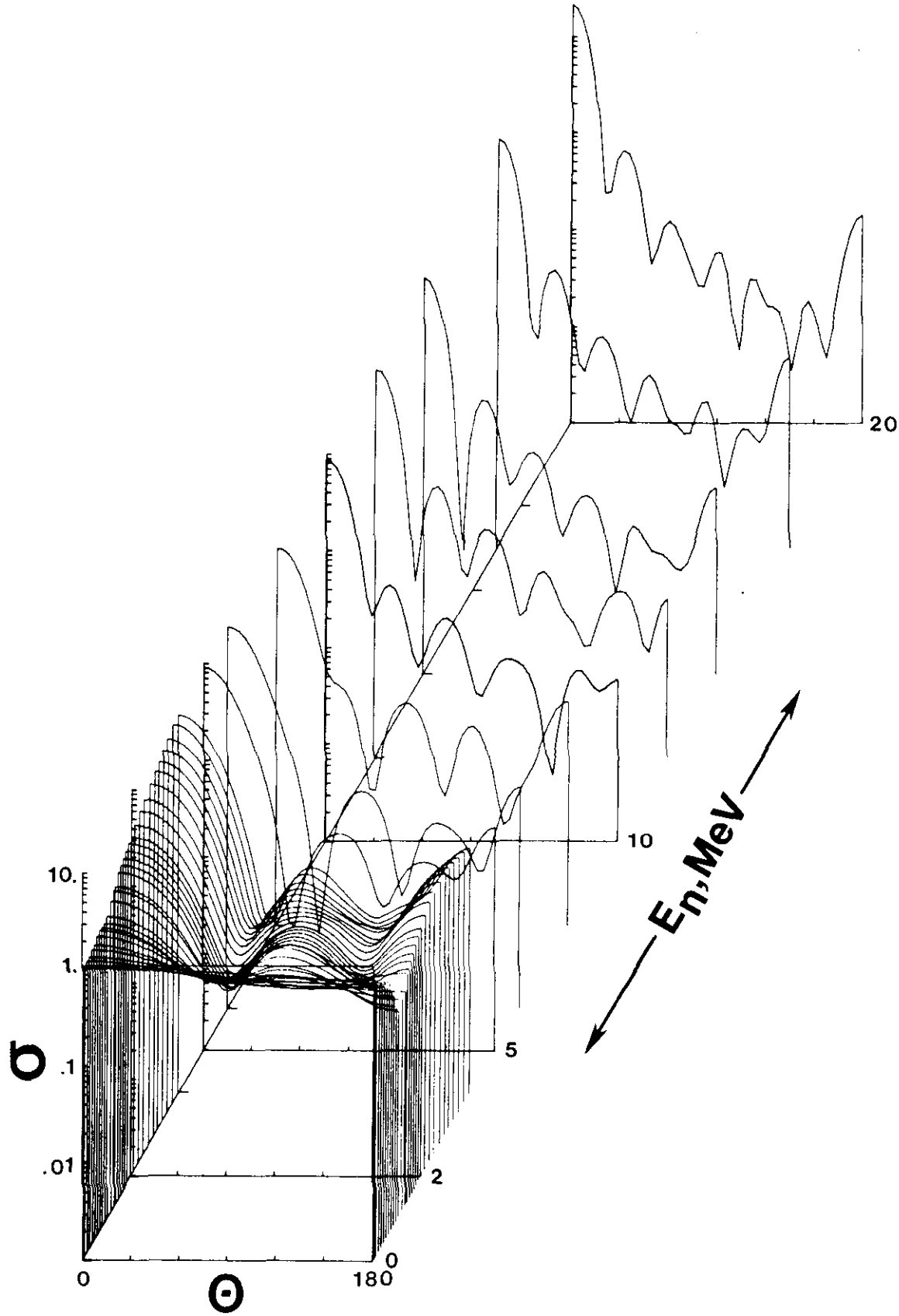

Fig. 6. Evaluated neutron-elastic-scattering cross sections of elemental bismuth. The dimensionality is cross section in b/sr and scattering angle in laboratory degrees.

The magnitude of the continuum-inelastic-scattering component was derived from the difference between the measured neutron-total cross sections and the other partial cross sections (largely elastic scattering, (n;2n) and (n;3n) cross sections) with guidance from the systematics derived from the results of the LLL pulsed sphere measurements.[41] The magnitude uncertainty is estimated to be 10-15% over any region of appreciable size. The evaluated result is qualitatively consistent with estimates based upon the above calculational model. The continuum-emission spectra were assumed to be energy-dependent temperature distributions with the addition of a precompound component. The choice of the emission spectrum was guided by the results of macroscopic sphere-transmission measurements[41] with similar nuclides (e.g. with lead).

All angular distributions of inelastically scattered neutrons were assumed to be isotropic. This assumption is consistent with the above experimental results for the excitation of discrete levels. It is not valid for the pre-compound component at higher energies but there is no alternative within accepted ENDF format practice.

The relative magnitudes of the various inelastic components are indicated in Fig. 7.

D. Neutron Radiative-capture Cross Sections

A notable feature of the neutron interaction with bismuth is the generally very small radiative capture cross section. The thermal value is only 33 mb and the resonance integral 0.19 b.[31] As a consequence of this fact, the lack of experimental resonance information, and the high-energy motivation of this evaluation, no attempt was made to give detailed capture resonance parameters. The small cross section values are approximated only with broad energy-averaged values. The evaluation follows the thermal value of Ref. 31 and assumes a 1/v behavior at low energies. This low-energy region is matched to the higher-energy experimental results of Macklin et al.[42] and extended to still higher energies with the result of Diven et al.[43] At 14 MeV the evaluation follows the measured values summarized in Ref. 44. The preliminary result was adjusted to give reasonable agreement with the resonance integral given in Ref. 31 (i.e. evaluation = 0.17 vs. 0.19 ± 0.03 of Ref. 31).

The present evaluation in this area must be considered as only qualitative. Users with applications sensitive to low energy capture should proceed with considerable caution. For most high-energy applications the uncertainties in the radiative capture cross sections in the low energy region, and even generally, are of little note as the cross sections are very small.

E. The (n;2n') Reaction

The (n;2n') reaction on ^{209}Bi has a Q-value of -7.450 MeV for production of ^{208}Bi in the ground state, which has a half life of 3.68 x 10^5Y. Some of the (n,2n') reactions produce the 2.65 ± 0.14 millisecond isomer, ^{208m}Bi. Only the isomeric cross section can be reasonably investigated using activation techniques, and even this requires special care because of the short half life.

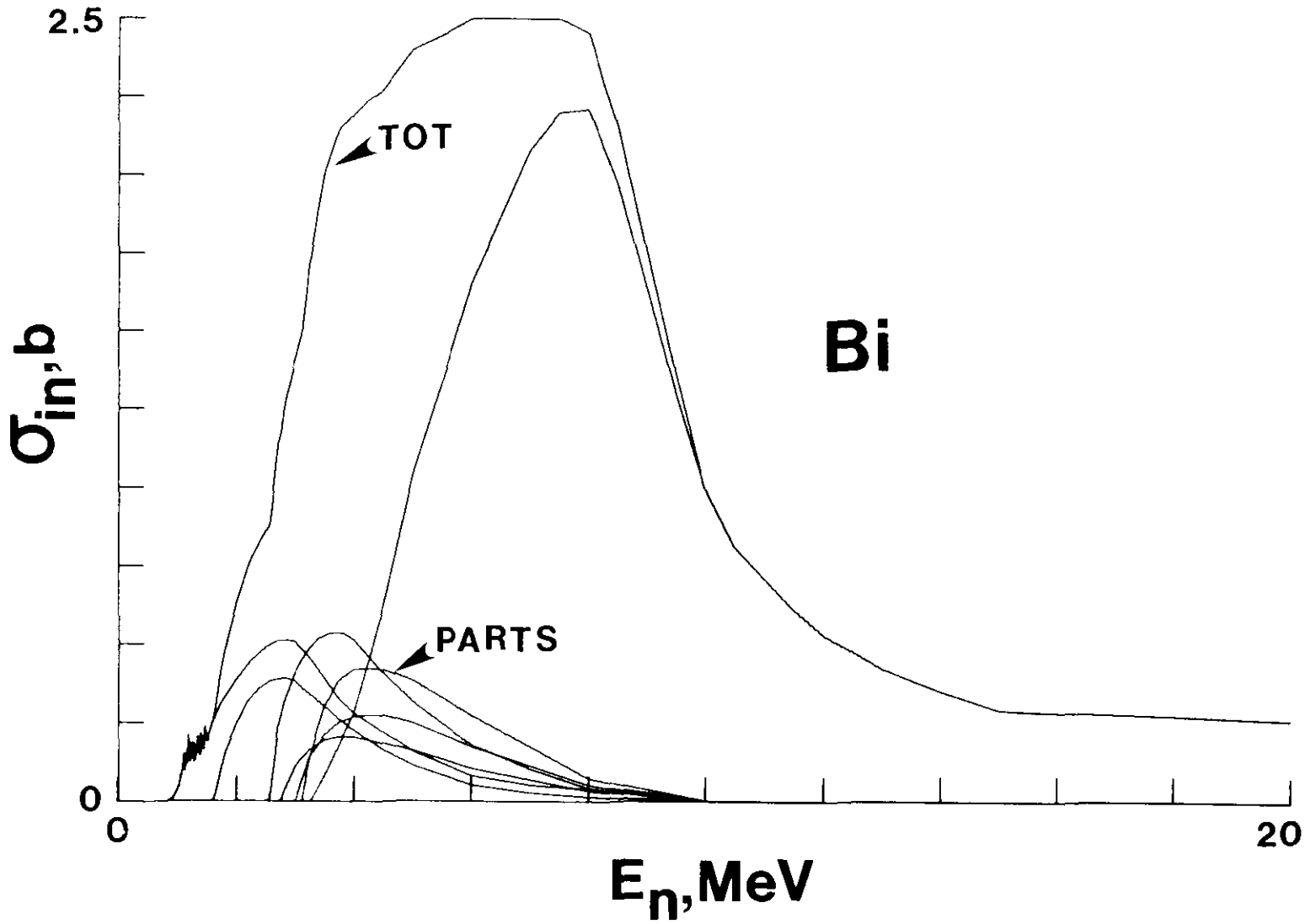

Fig. 7. Evaluated-neutron-inelastic-scattering cross sections of elemental bismuth.

There have been several measurements of the (n;2n') activation of ^{208m}Bi.[45-48] The available results are summarized in Table III. There are considerable differences between these reported results. A weighted average of the isomer excitation cross section is ~280 mb, and this is only ~12% of the total (n;2n') cross section. Therefore, activation measurements are of limited value in the provision of the information which is required for most applications.

Several measurements involving direct detection of the neutrons have been reported for neutron energies around 14 MeV.[49-55] Various techniques including emulsions, thin-shell transmission and large scintillation counters were used in these experiments. Significantly, all these results fall within a band of ± 20% (see Fig. 8).

The most recent and reliable data sets come from measurements performed with large gadolinium-loaded liquid-scintillation detectors by a group at Bruyeres le Chatel (BRU)[56] and another group at Los Alamos (LASL).[57] The methods used by these two groups were nearly the same. Both used a ^{252}Cf spontaneous fission neutron source to measure their scintillation detector efficiency. The BRU group used ^{238}U fission as a monitor whereas the LASL group used the hydrogen standard by means of an organic liquid scintillator. The BRU measurements define the total (n;2n') cross section from threshold to ~15 MeV while the LASL measurements extend from ~15 MeV to above 20 MeV. These results are in good agreement at the overlap energy ≈15 MeV (see Fig. 8).

The present evaluation is based primarily on the experimental data of Frehaut and Mosinski[56] and Vesser et al.[57] (see Fig. 8). The evaluated 14 MeV cross section of Body and Csikai[58] is plotted on Fig. 8 and lies very close to our evaluated curve. Another weighted average of 14 MeV data, reported by Kondaiah[59] lies ~10% above our curve. Also shown on Fig. 8 are the three values of Pearlstein[60] calculated using the statistical model. These cross sections are somewhat larger than those from the present evaluation and also indicate a shape for the excitation function which differs noticeably from the experimental results.

The model calculations of Vesser et al.[57] are shown as a dashed line on Fig. 8. These calculations include pre-equilibrium effects, and agree fairly well with the experimental results. These model calculations appear, however, to over-estimate the cross section in the threshold region and depart somewhat from the experimentally determined shape above 14 MeV.

The above reaction and the following (n;3n') reaction essentially dominate the non-elastic cross section above approximately 14 MeV. Using these two components, as independently evaluated in these two sections, an unusual "bump" would appear in the non-elastic cross section at about 17 MeV suggesting that the composite contributions of (n;2n') and (n;3n') cross sections are too large by about 10% over a several MeV region. Therefore the comprehensive evaluation renormalizes the individual evaluated (n;2n') and (n;3n') components downward by approximately 10% near 17 MeV so as to give a reasonably smooth non-elastic cross section. The source of the anomolous "bump" appears to be in the measured results of Ref. 57. A systematic error in that set of measurements of approximately 10% in this narrow energy region would easily account for the observed anomaly.

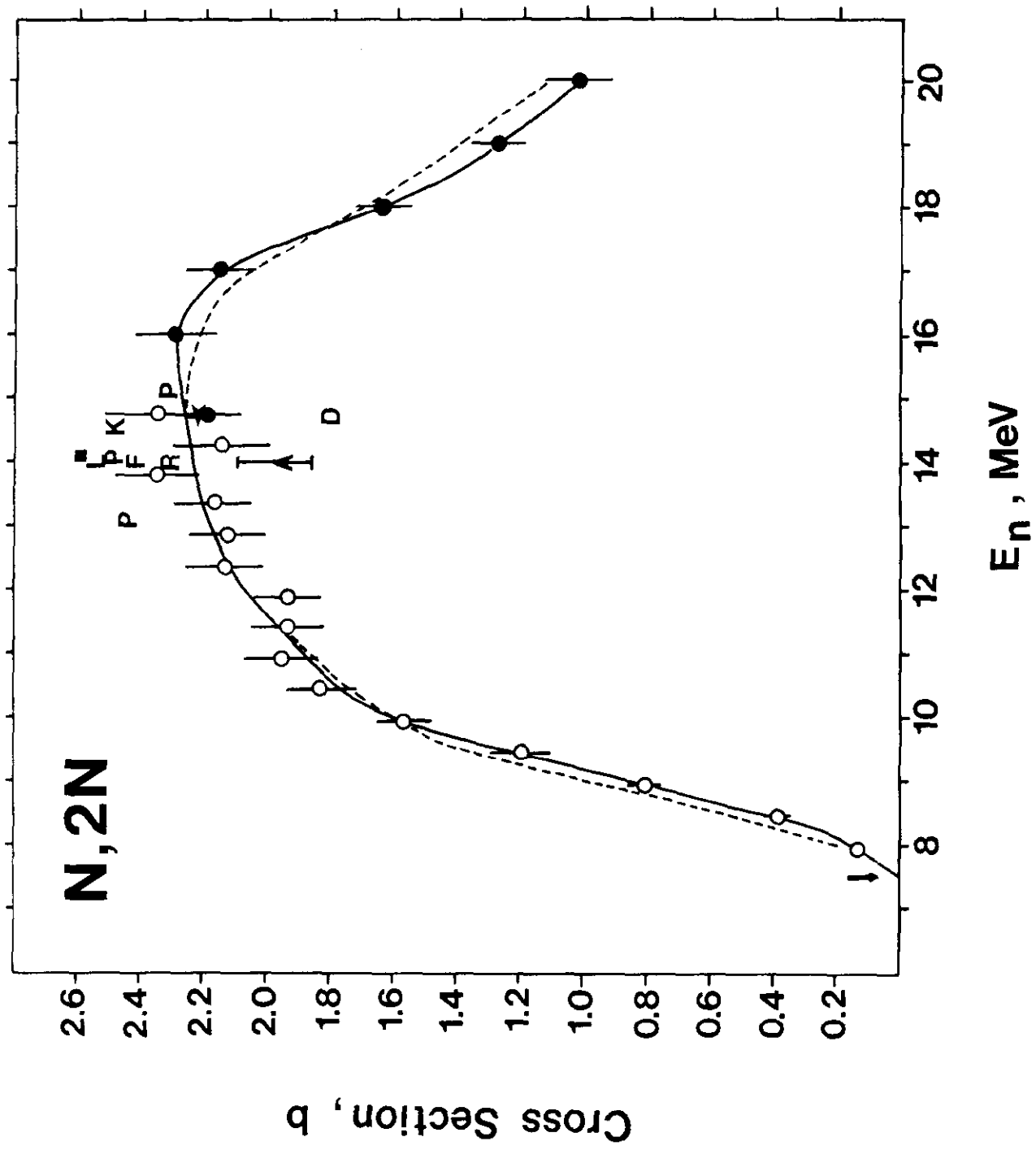

Fig. 8. Experimental, Evaluated and Calculated Cross Sections for the $^{209}Bi(n;2n')^{208}Bi$ (Total) Reaction: ○ (Ref. 57), ● (Ref. 56), ★ (Ref. 58), ■ (Ref. 50), L (Ref. 54), K (Ref. 59), P (Ref. 60), F (Ref. 53), R (Ref. 51), I (Ref. 52), A (Ref. 49), D (Ref. 55), --- (Ref. 56), and --- (Present Evaluation).

Table III. Experimental Cross Sections for Activation of the 2.65 ms Isomeric State in ^{208}Bi by the $^{209}Bi(n';2n')^{208m}Bi$ Reaction

Authors	Neutron Energy (MeV)	σ(n;2n) (Isomer) (mb)	Method
G. N. Salaita et al.,[48]	14.8	393 ± 35	Cyclic Activ., Assoc. Particle, γ-ray Detection, Ge(Li)
V. L. Glagove et al.,[45]	14.7	660 ± 120	Rel. to $^{63}Cu(n,2n)$ γ-ray Detection, NaI
E. Monnand[46]	~14	290 ± 30	No Details Avail.
L. Van Zelst et al.,[47]	~14	118 ± 35	No Details Avail.

In view of Fig. 8 and the above remarks, the uncertainty in the present evaluation is estimated to be: 15% to 9.5 MeV, 10% from 9.5 to 11.5 MeV, 8% from 11.5 to 17.5 MeV and 10% from 17.5 to 20 MeV.

F. The (n;3n') Reaction

The (n;3n') reaction on ^{209}Bi leads to ^{207}Bi with a half life of 38 y and has a Q-value of -14.36 MeV. Nearly 100% of all ^{207}Bi decays produce a 0.570 MeV gamma ray; in fact, calibrated ^{207}Bi sources can be obtained from the U.S. National Bureau of Standards. Nevertheless, no activation data are available for this reaction. The only experimental data available are the values from Vesser et al.[57] These researchers used a large gadolinium-loaded liquid scintallator and the techniques described above for (n;2n') measurements. The results of this work are shown in Fig. 9 together with our evaluation based entirely on the data of Vesser et al. Vesser et al. have calculated the (n;3n') cross section from a model which included pre-equilibrium effects. This calculation appears to noticeably underestimate the cross section over most of the range of this evaluation.

The estimated uncertainties are: 30% to 17 MeV, 20% from 17 to 18.5 MeV, and 15% at higher energies.

G. (n;X) Reactions

Elemental bismuth consists of only one quasi-stable isotope, ^{209}Bi ($t_{1/2} = 2 \times 10^{18}$Y). There are a number of neutron-induced charged-particle-emitting reactions that are energetically possible, as outlined in Table IV, over the neutron energy range of the present evaluation (i.e. less than 20 MeV). Most of these reactions are uncertain but very probably of small cross section. Each is dealt with in the following subsections.

G-1. The (n;p) Reaction

The (n,p) reaction on ^{209}Bi has a Q-value of +0.13 MeV. The reaction product is 3.28 hr ^{209}Pb. This β-emitter produces no gamma rays, but can be investigated by means of β-detection techniques.

The reaction is not favored because of Coulomb-barrier effects, in spite of the slightly positive Q-value. However, it should be noted, as pointed out by Coleman et al.[61], that for masses A > 100 the cross sections for (n,p) reactions are not very sensitive to mass number at neutron energies well above threshold because of the strong influence of direct-interaction processes. The reaction cross sections are somewhat sensitive to nuclear structural effects, however, and the (n,p) reaction has been investigated at ~14 MeV for many nuclei to determine the effects of pairing and shell-model phenomena.[62-64] Generally, the (n,p) cross sections for A > 100 are < 10 mb at ~14 MeV.

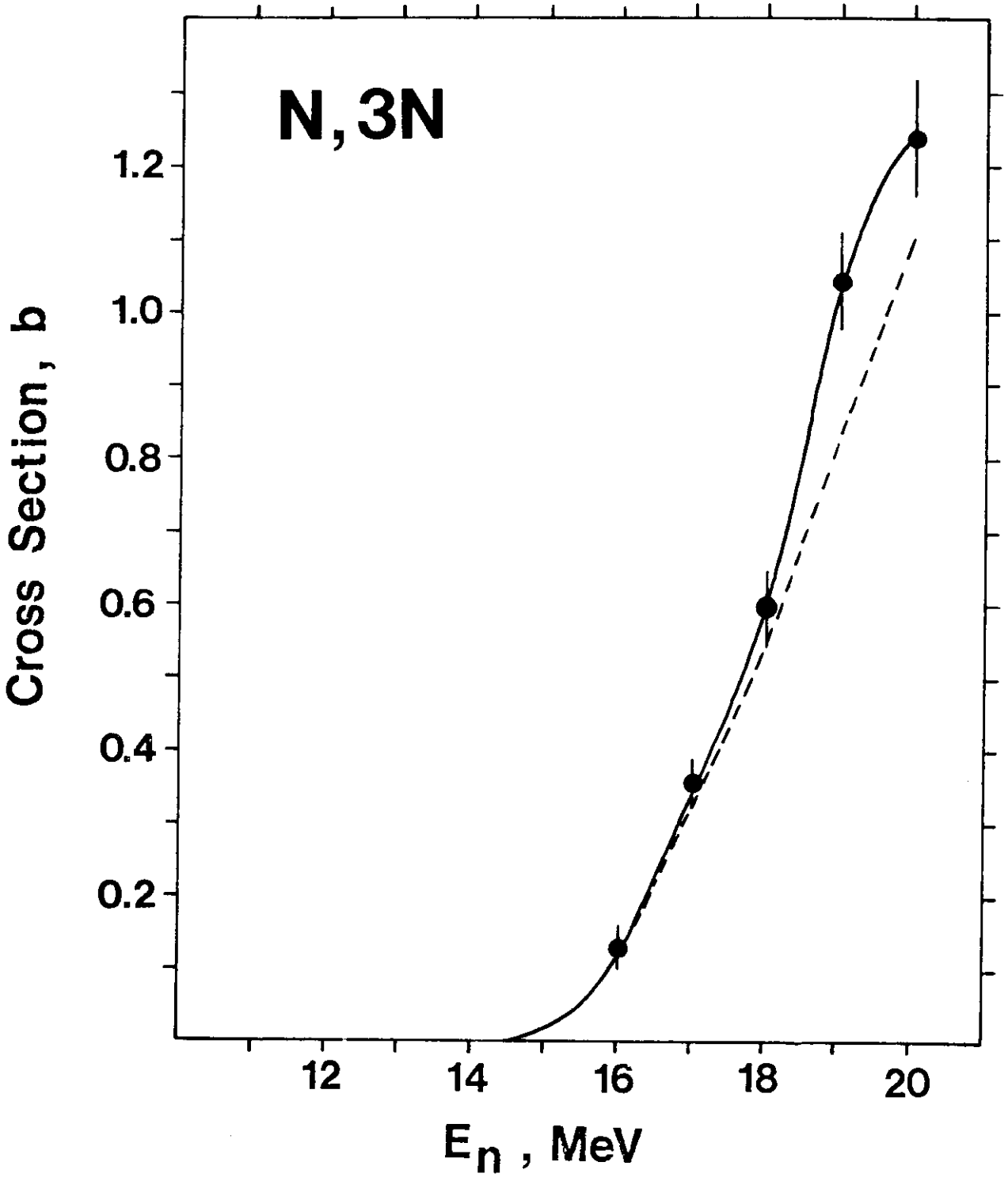

Fig. 9. Experimental, Evaluated and Calculated Cross Sections for the $^{209}Bi(n,3n)^{207}Bi$ Reaction: ● (Ref. 57), --- (Ref. 57), model calculations and —— (Present Evaluation).

TABLE IV. Energetically Possible $^{209}Bi(n:X)$ Reactions

1	$(n;p)^{209}Pb$	Q = +0.13 MeV
2	$(n;alpha)^{206}Tl$	Q = +9.63 "
3	$(n;^{3}He)^{207}Tl$	Q = -4.10 "
4	$(n;t)^{207})Pb$	Q = -2.69 "
5	$(n;d)^{208}Pb$	Q = -1.58 "
6	$(n;n',p)^{208}Pb$	Q = -3.80 "
7	$(n;n',alpha)^{205}Tl$	Q = +3.13 "
8	$(n;n',d)^{207}Pb$	Q = -8.95 "
9	$(n;n',^{3}He)^{206}Tl$	Q = -10.94 "
10	$(n;n',t)^{206}Pb$	Q = -9.43 "

There are four reported (n,p) reaction cross sections for ^{209}Bi[61,65-67]. All of these were measured at ~14 MeV. These data are summarized in Table V. The weighted average of these data corresponds to 0.89 mb at 14.5 MeV. There are no data on bismuth at other energies; however, there are experimental data defining the excitation function for the $^{197}Au(n,p)^{197}Pt$ reaction.[68] Since the mass and atomic number for gold are not far removed from bismuth, and the (n,p) reaction Q-values are similar, we decided to use the shape for gold from BNL-325[68] and normalize it to our average 14.5 MeV point for bismuth to provide an estimate of the excitation function for the $^{209}Bi(n,p)\ ^{209}Pb$ reaction up to ~20 MeV. Uncertainties in the evaluation are large, ≈50%.

An indication of the relative importance of the (n,p) reaction for ^{209}Bi is deduced from the estimate of the fission spectrum average cross section of Roy and Hawton.[69] The value of 0.005 mb reported by these authors may be in error by as much as a factor of 2-3, but it nevertheless is so small that the reaction is of relatively minor consequence from the point of view of hydrogen production in a fission reactor.

G-2. The (n;α) Reaction

The (n;α) reaction on ^{209}Bi has a large positive Q-value of 9.63 MeV. The reaction proceeds to either the ground state ($t_{1/2}$ = 4.20m) or a 12^- isomeric level ($t_{1/2}$ = 3.60m). I. Uray et al.[70] have measured the isomer ratio for this reaction and find that only 1-2% of the (n;α) reactions excite the isomer; therefore, the isomer effect can be safety ignored.

The large positive Q-value for this reaction has prompted speculation that the thermal (n;α) cross section is significant. J. Alam et al.[71] have measured the thermal ratio (n,α)/(n,γ) and estimated that the thermal (n;α) cross section is ~0.1 mb. However, A. Emsallen et al.[72] have observed no evidence for a measurable thermal (n;α) cross section for ^{209}Bi. We will assume that it is negligible.

Some data from activation measurements are available for the region around 14 MeV. These results are summarized in Table VI. The (n;α) cross sections for heavy elements are known to be anomalously large when viewed from the point of view of the statistical theory of nuclear reactions. This effect is explained by the direct reaction mechanism.[73,74] Shell effects are also clearly evident in systematic surveys of 14 MeV (n;α) reaction data.[75] Our evaluation in this region is a weighted average of the activation data which gives 0.64 mb at 14.7 MeV.

Direct α-particle measurements have been reported by three groups. P. Kulisic et al.[76] have reported a value of 1.0 ± 0.5 mb at 14.8 MeV for the (n;α) cross section. A. Rubbino et al.[77] and L. Colli-Millazo et al.[74] performed measurements at several energies. These latter two data sets are in reasonably good agreement. Our evaluation for the (n;α) cross section above ~16 MeV is based on a smooth curve drawn through these two data sets as shown in Fig. 10. Below ~16 MeV, we sketched the curve somewhat below the direct particle points so that it passes through the average activation point at 14.6 MeV, since the activation data are presumably more accurate in this region. The evaluation is then extended linearly to

TABLE V. Experimental (n;p) Data for ^{209}Bi at ≈14 MeV

Authors	Neutron Energy (MeV)	σ(n;p) (mb)	Method
R. F. Coleman et al.,[61]	14.5	1.33 (±15%)	Activation, β counting, $^{27}A\ell(n;\alpha)$ standard.
S. K. Mukherjee et al.,[65]	~14	0.6 ± 0.1	$^{27}A\ell(n;\alpha)$ standard, no other details.
S. K. Mukherjee et al.,[67]	14.8	0.7 (±15%)	Activation, β counting, $^{63}Cu(n;2n)$ standard.
A. Poulerikas and R. W. Fink,[66]	14.8	0.83 ± 0.40	Activation, β counting, $^{27}A\ell(n;\alpha)$ standard.
Weighted Average	~14.7	0.89 (±20%)	

TABLE VI. Experimental (n;α) Data for ^{209}Bi at ~14 MeV

Authors	Neutron Energy (MeV)	σ(n;α) (mb)	Method
E. B. Paul and R. L. Clark,[78]	14.5	1.2 (±85%))	Assocaited Particle, β counting.
R. F. Coleman et al.,[61]	14.5	0.52 (±15%)	$^{27}A\ell(n;\alpha)$ standard, β counting
A. Poulerikas and R. W. Fink,[79]	14.8	1.1 ± 0.3	$^{63}Cu(n;2n)$ standard, β counting
S. K. Mukherjee et al.,[80]	14.8	0.6 (±15%)	$^{27}A\ell(n;\alpha)$ standard, β counting

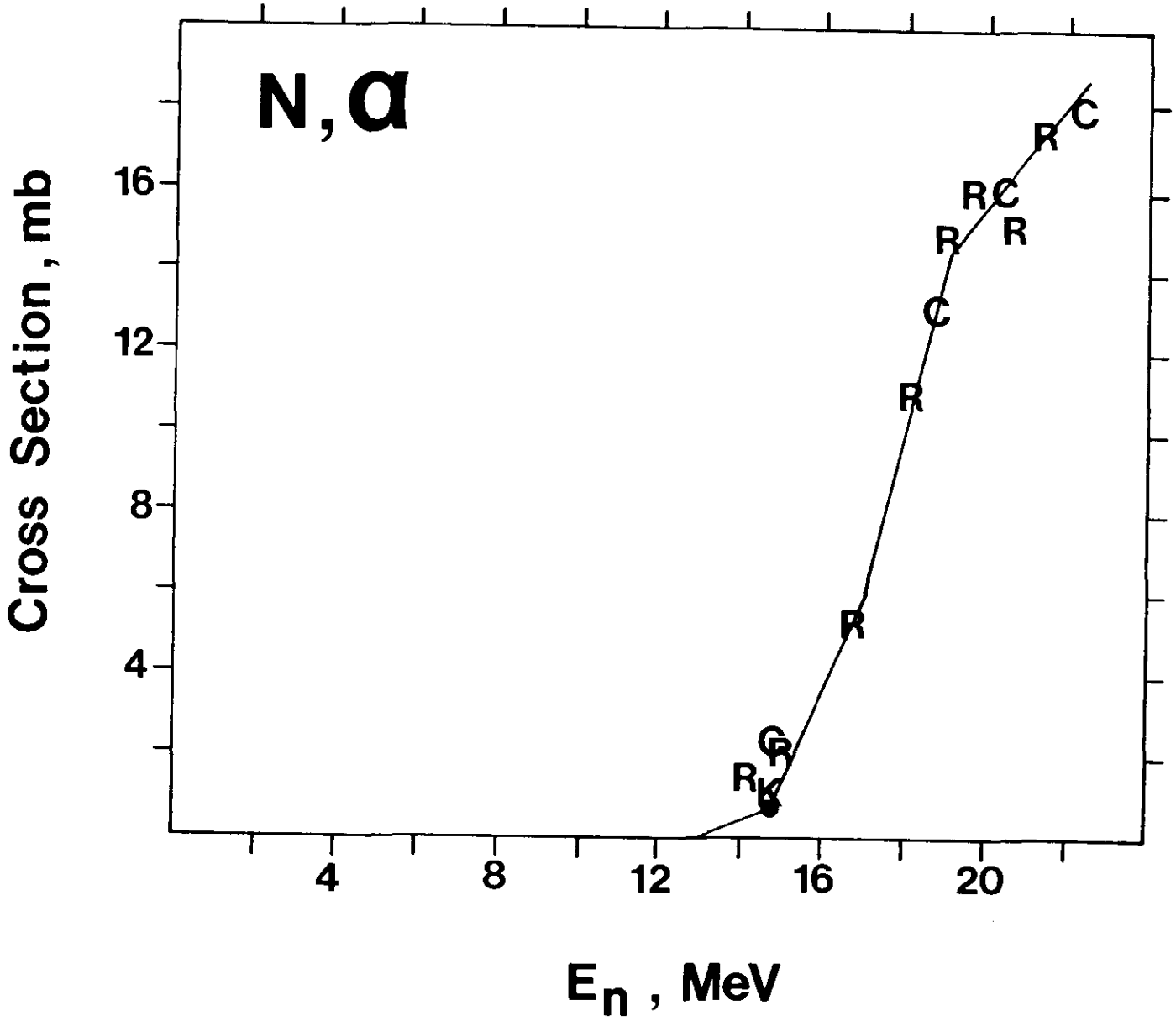

Fig. 10. Measured and evaluated cross sections for the $^{209}Bi(n,\alpha)^{206}Tl$ reaction: R (Ref. 77), C (Ref. 74), K (Ref. 76).

approximately zero at ~13 MeV since there is no evidence for a significant cross section at lower energies. Estimated uncertainties are ≈30%.

Roy and Hawton[69] have estimated that the fission spectrum average cross section for the (n;α) reaction in ^{209}Bi is ~0.0001 mb. The uncertainty of this number may be an order of magnitude, but it certainly appears that this reaction is of little consequence for fission reactor applications.

G-3. Other (n;X) Reactions

The ^{209}Bi(n;n',p)^{208}Pb reaction has a Q-value of -3.798 MeV. No references to this reaction are available in CINDA.[81] However, we can estimate the magnitude of the cross section for energies ~14 MeV by considering the available results for the (n;n',p) reaction on other nuclei. R. F. Coleman et al.[61] estimated that the (n;n',p) reaction cross section would be no more than 3% of the (n;p) cross section for A > 109. Based on our information on the (n;p) reaction, this would limit the cross section to ~0.03 mb at ~14 MeV. From the compilations of Chatterjee[82] and JAERI-1252[83], it is apparent that the (n;n',p) cross section is considerably < 1 mb in this mass region. For this reason, we make no attempt to provide an evaluation for this reaction.

The ^{209}Bi(n;n',α)^{205}Tl reaction has a Q-value of + 3.13 MeV. There are no references to this reaction in CINDA[81], but this appears to be an oversight, because it has been discussed by A. Rubbino et al.[77] These authors provide a rather crude estimate of the cross section to past 20 MeV on the basis of statistical calculations. We have used their results for the present evaluation, and assigned 50% uncertainties commensurate with the comments in their paper. Data on other (n,α) reactions for heavy nuclei, available from JAERI-1252[83], are generally consistent with the present evaluation, though it must be kept in mind that there are pronounced shell effects which influence the Q-values and cross sections for this process.

Very few data are available on the (n;t), (n;^{3}He), (n;d), (n;n',d), (n;n',^{3}He) and (n;n',t) reactions for any elements let alone ^{209}Bi. There is some evidence from Qaim et al.[84] that the total tritium production is < 3 mb at 22.5 MeV for ^{209}Bi, and that the sum (n;n',d) + (n';n'p) is also a few mb at this energy, and presumably drops precipitously at lower energies. T. Biro et al.[85] indicated that at ~14 MeV, the (n;t) reaction is << 1 mb and that the ratio of the (n;^{3}He) to (n;t) cross section is < 0.01. In view of the limited available data on these exotic reactions, and the fact that the cross sections are small, we have not attempted to evaluate them and consider them to be negligible in the present work.

H. Photon-Production

For incident neutron energies less than the threshold for inelastic scattering the only photon producing process is the neutron capture reaction. For this lower energy range photon production was dealt with by using a multiplicity and spectrum as measured by Rasmussen et al.[86] The multiplicity was set to zero at 0.9 MeV. The photons produced by the capture reaction were subsumed into the (n,Xγ) process for incident neutron energies greater than 0.9 MeV.

For incident neutron energies equal to or greater than 0.9 MeV, the method of Perkins, Haight and Howerton [87] was used to calculate cross sections and spectra for the (n,Xγ) process. In the absence of detailed experimental data this method has the advantage of conserving energy on the average between secondary neutrons and photons.

VI. SUMMARY COMMENTS

The present measurements give new definition to the energy-averaged neutron total cross sections of elemental bismuth from 1.2-4.5 MeV. They also give detailed definition to the neutron differential-elastic-scattering cross section from 1.5-4.0 MeV. These experimental results formed a basis for the derivation of an optical-statistical model suitable for extrapolating and interpolating the measured values particularly for evaluation purposes. The measurements also improved the knowledge of the neutron differential-inelastic-scattering cross sections for the excitation of levels to > 3.0 MeV. The experimental results and interpretation, together with results reported in the literature, were used to provide a comprehensive evaluated-nuclear-data file in the ENDF format. This file is oriented towards the needs fusion-fission hybrid and similar high-energy applications. It does make possible the quantitative assessment of the neutronic performance of such energy systems.

ACKNOWLEDGEMENTS

The authors are indebted to a number of individuals at Lawrence Livermore Laboratory and Argonne National Laboratory for their contributions to various aspects of this work. The authors are particularly appreciative of the assistance provided by Dr. E. Pennington.

APPENDIX: NUMERICAL EVALUATED DATA FILE

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 0.00000+ 0 0.00000+ 0          0          0          0          0 209 1451     2
 0.       + 0 0.       + 0      0          0          5         42 209 1451     3
                              BI-209                                209 1451     4
BISMUTH EVALUATED FILE,  D.SMITH, A.SMITH, P.GUENTHER (ANL) AND     209 1451     5
R. HOWERTON (LLL), DOCUMENTED IN ANL/NDM-51 (1980)                  209 1451     6
                                                                    209 1451     7
                                                                    209 1451     8
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                                3          4         40          1 209 1451    13
                                3         16         11          1 209 1451    14
                                3         17          6          1 209 1451    15
                                3         22          6          1 209 1451    16
                                3         51         30          1 209 1451    17
                                3         52          9          1 209 1451    18
                                3         53          9          1 209 1451    19
                                3         54          8          1 209 1451    20
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                                3         56          7          1 209 1451    22
                                3         91         10          1 209 1451    23
                                3        102         34          1 209 1451    24
                                3        103          8          1 209 1451    25
                                3        107          6          1 209 1451    26
                                3        251         17          1 209 1451    27
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                                4         17         10          1 209 1451    32
                                4         22         10          1 209 1451    33
                                4         51         10          1 209 1451    34
                                4         52         10          1 209 1451    35
                                4         53         10          1 209 1451    36
                                4         54         10          1 209 1451    37
                                4         55         10          1 209 1451    38
                                4         56         10          1 209 1451    39
                                4         91         10          1 209 1451    40
                                5         16        143          1 209 1451    41
                                5         17         92          1 209 1451    42
                                5         22         88          1 209 1451    43
                                5         91        157          1 209 1451    44
                               12        102          5          1 209 1451    45
                               13          3          7          1 209 1451    46
                               14          3          1          1 209 1451    47
                               14        102          1          1 209 1451    48
                               15          3        202          1 209 1451    49
                               15        102         16          1 209 1451    50
                                                                    209 1  0    51
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 8.32090+ 4 1.00000+ 0          0          0          1          0 209 2151    53
 1.00000- 4 2.00000+ 7          0          0          1          0 209 2151    54
 4.50000+ 0 8.62400- 1          0          0          0          0 209 2151    55
                                                                    209 2151    56
                                                                    209 2  0    57
 8.32090+ 4 2.07185+ 2          0          0          0                209 0  0    58
                                                                    209 0  0    59
                                                                  0 209 3  1
```

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	1234		2									209	3	1	61
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5,00000-	5	1,00893+	1	6,00000-	5	1,00246+	1	7,00000-	5	9,97440+	0	209	3	1	63
8,00000-	5	9,93390+	0	1,00000-	4	9,87190+	0	2,00000-	4	9,71820+	0	209	3	1	64
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4,00000-	3	9,42999+	0	5,00000-	3	9,42123+	0	6,00000-	3	9,41476+	0	209	3	1	68
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8,00000-	2	9,36556+	0	1,00000-	1	9,36360+	0	2,00000-	1	9,35874+	0	209	3	1	72
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7,00000+	2	6,59480+	0	7,31100+	2	5,53004+	0	7,37700+	2	5,27000+	0	209	3	1	77
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8,43600+	2	2,80200+	1	8,51800+	2	2,35797+	1	8,64200+	2	2,06202+	1	209	3	1	91
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3,39300+	3	1,11696+	1	3,43200+	3	1,13397+	1	3,50000+	3	1,10625+	1	209	3	1	115
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1,20500+	4	5,31004+	1	1,20800+	4	6,21354+	1	1,21000+	4	7,61998+	1	209	3	1	145
1,21300+	4	8,31598+	1	1,21800+	4	9,73202+	1	1,21900+	4	1,04996+	2	209	3	1	146
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1,23400+	4	6,40001+	1	1,23500+	4	5,47798+	1	1,23600+	4	5,34005+	1	209	3	1	148
1,24100+	4	4,30899+	1	1,24700+	4	4,20300+	1	1,24800+	4	3,73996+	1	209	3	1	149
1,25500+	4	3,34004+	1	1,25800+	4	2,94804+	1	1,26400+	4	2,73595+	1	209	3	1	150
1,27000+	4	2,46396+	1	1,28200+	4	2,15198+	1	1,30000+	4	1,82900+	1	209	3	1	151
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1,55100+	4	4,26995+	1	1,55200+	4	4,81995+	1	1,55400+	4	6,27004+	1	209	3	1	156
1,55500+	4	8,72404+	1	1,55700+	4	7,35003+	1	1,55800+	4	6,52103+	1	209	3	1	157
1,56000+	4	5,69002+	1	1,56600+	4	4,29300+	1	1,56900+	4	3,27998+	1	209	3	1	158
1,57300+	4	2,87997+	1	1,57400+	4	2,33296+	1	1,60000+	4	1,92997+	1	209	3	1	159
1,61600+	4	1,63001+	1	1,64600+	4	1,46399+	1	1,72100+	4	1,29401+	1	209	3	1	160
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1,74600+	4	1,43502+	1	1,74900+	4	1,29800+	1	1,75000+	4	1,29738+	1	209	3	1	162
1,90100+	4	1,20403+	1	2,00000+	4	1,15795+	1	2,00200+	4	1,15702+	1	209	3	1	163
2,07300+	4	1,13801+	1	2,09700+	4	1,36601+	1	2,10200+	4	1,55001+	1	209	3	1	164
2,10500+	4	1,99001+	1	2,10700+	4	1,91001+	1	2,11100+	4	1,31001+	1	209	3	1	165
2,14900+	4	1,11701+	1	2,40000+	4	1,08424+	1	2,40200+	4	1,08398+	1	209	3	1	166
2,49600+	4	1,10203+	1	2,50800+	4	1,37003+	1	2,51300+	4	1,14202+	1	209	3	1	167
2,51800+	4	1,24402+	1	2,51900+	4	1,38002+	1	2,52300+	4	1,99002+	1	209	3	1	168
2,52700+	4	2,68002+	1	2,53000+	4	2,45001+	1	2,53200+	4	1,69001+	1	209	3	1	169
2,53500+	4	1,16401+	1	2,53900+	4	1,21001+	1	2,54600+	4	1,07801+	1	209	3	1	170
2,56300+	4	1,04300+	1	2,60000+	4	1,07274+	1	2,60900+	4	1,07997+	1	209	3	1	171
2,64900+	4	1,02103+	1	2,68500+	4	6,40995+	0	2,69700+	4	7,40003+	0	209	3	1	172
2,69900+	4	6,40001+	0	2,70000+	4	1,09998+	1	2,70300+	4	1,42298+	1	209	3	1	173
2,70600+	4	1,95997+	1	2,70800+	4	2,16747+	1	2,71100+	4	1,89797+	1	209	3	1	174
2,71400+	4	1,54597+	1	2,71600+	4	1,55296+	1	2,72300+	4	1,27496+	1	209	3	1	175
2,74000+	4	1,13804+	1	2,80000+	4	9,67998+	0	2,80600+	4	9,72998+	0	209	3	1	176
2,90100+	4	9,54005+	0	3,00000+	4	9,55980+	0	3,00100+	4	9,56000+	0	209	3	1	177
3,10600+	4	6,64996+	0	3,20000+	4	7,95000+	0	3,29600+	4	6,04998+	0	209	3	1	178
3,30400+	4	7,52002+	0	3,31300+	4	8,72996+	0	3,31400+	4	1,05000+	1	209	3	1	179

3,32100+	4	1,37800+	1	3.32400+	4	1,65600+	1	3.32900+	4	2,60300+	1	209	3	1	180
3,33800+	4	3,31101+	1	3,34000+	4	3,63401+	1	3.35100+	4	3.20102+	1	209	3	1	181
3,36400+	4	2,40902+	1	3.36400+	4	1,79503+	1	3.39500+	4	1,64104+	1	209	3	1	182
3,40000+	4	1,61646+	1	3,44900+	4	1,17896+	1	3,60000+	4	1,13694+	1	209	3	1	183
3,62100+	4	1,12898+	1	3,69000+	4	1,11205+	1	3,71800+	4	1,15004+	1	209	3	1	184
3,72500+	4	1,70503+	1	3,73200+	4	1.20003+	1	3.74900+	4	1,08802+	1	209	3	1	185
3,76100+	4	1,05202+	1	3,79700+	4	9,94001+	0	3,80000+	4	1,00146+	1	209	3	1	186
3,83400+	4	1,08597+	1	3,87100+	4	1,03304+	1	3.90900+	4	1,09401+	1	209	3	1	187
3,91300+	4	1,16401+	1	3.91700+	4	1,26201+	1	3.92400+	4	1,04000+	1	209	3	1	188
3,94700+	4	9,41002+	0	3,98600+	4	1,01995+	1	4.00000+	4	9,98187+	0	209	3	1	189
4,02600+	4	9,57997+	0	4,06600+	4	9,10995+	0	4.10700+	4	9,77002+	0	209	3	1	190
4,14800+	4	1,02202+	1	4,19000+	4	9,66002+	0	4,22300+	4	1,12002+	1	209	3	1	191
4,23000+	4	1,18997+	1	4,23200+	4	1,17399+	1	4,24200+	4	1,49797+	1	209	3	1	192
4,24700+	4	1.15501+	1	4.26100+	4	9.49998+	0	4,27600+	4	9.18997+	0	209	3	1	193
4,32000+	4	8,66997+	0	4,36400+	4	8,72997+	0	4,41000+	4	8,34004+	0	209	3	1	194
4,45600+	4	8,29000+	0	4,50000+	4	7,63991+	0	4,50200+	4	7,61003+	0	209	3	1	195
4,51300+	4	7,00002+	0	4,53400+	4	8,49996+	0	4,54400+	4	1,00995+	1	209	3	1	196
4,55000+	4	1,60500+	1	4,55500+	4	2.21996+	1	4,56000+	4	2,72002+	1	209	3	1	197
4,56600+	4	2,99997+	1	4,57100+	4	2,71003+	1	4,57600+	4	2,07999+	1	209	3	1	198
4,59800+	4	1,60600+	1	4,64700+	4	1,31099+	1	4,69700+	4	1,10798+	1	209	3	1	199
4,74700+	4	1,06896+	1	4,79900+	4	1,09903+	1	4,85100+	4	1,07099+	1	209	3	1	200
4,95800+	4	1,05000+	1	5,00000+	4	1,01100+	1	5,02500+	4	9,87999+	0	209	3	1	201
5,07100+	4	1,00105+	1	5,11900+	4	1,03704+	1	5,16600+	4	9,46003+	0	209	3	1	202
5,21500+	4	9,06000+	0	5,23100+	4	1,21704+	1	5,29700+	4	1,06604+	1	209	3	1	203
5,31400+	4	9,71996+	0	5,33100+	4	8,99995+	0	5,34800+	4	9,20004+	0	209	3	1	204
5,36500+	4	9,93004+	0	5,38200+	4	1,37003+	1	5,39900+	4	1,18703+	1	209	3	1	205
5,41600+	4	1,07203+	1	5,46800+	4	1,05203+	1	5,52100+	4	9,87997+	0	209	3	1	206
5,57500+	4	9,98004+	0	5,62900+	4	9,78002+	0	5,68500+	4	9,90999+	0	209	3	1	207
5,74100+	4	9,53997+	0	5,79700+	4	9,91004+	0	5,85500+	4	9,41002+	0	209	3	1	208
5,97300+	4	9,30996+	0	6,03400+	4	9,18003+	0	6,09500+	4	8,62001+	0	209	3	1	209
6,13600+	4	8,45999+	0	6,15700+	4	1,12000+	1	6.17800+	4	1,24700+	1	209	3	1	210
6,19900+	4	1,09000+	1	6,24200+	4	9,96004+	0	6.28500+	4	1,01199+	1	209	3	1	211
6,41600+	4	9,53996+	0	6,48300+	4	9,54003+	0	6,55200+	4	9,08000+	0	209	3	1	212
6,62100+	4	8,82997+	0	6,69100+	4	8,86004+	0	6,76300+	4	7,78001+	0	209	3	1	213
6,80300+	4	6,79999+	0	6,86200+	4	6,49996+	0	6,88200+	4	7,49995+	0	209	3	1	214
6,89200+	4	9,00005+	0	6,90200+	4	1,32996+	1	6,91200+	4	1,79996+	1	209	3	1	215
6,92200+	4	2,55796+	1	6,93600+	4	2,47996+	1	7.00000+	4	1,73049+	1	209	3	1	216
7,01200+	4	1,58996+	1	7,04300+	4	1,41996+	1	7,10500+	4	1,22996+	1	209	3	1	217
7,19900+	4	1,11296+	1	7,23100+	4	1,04596+	1	7,25200+	4	1,18596+	1	209	3	1	218
7,26300+	4	1,39996+	1	7,27300+	4	1,25296+	1	7.29500+	4	1,13996+	1	209	3	1	219
7,39300+	4	1,02695+	1	7,49300+	4	1,01495+	1	8,00000+	4	8,79997+	0	209	3	1	220
8,10000+	4	7,99995+	0	8,15000+	4	8,60005+	0	8,18000+	4	2,03004+	1	209	3	1	221
8,20000+	4	1,40004+	1	8,22000+	4	1,00000+	1	8.25000+	4	9,00003+	0	209	3	1	222
8,48000+	4	8,00003+	0	8,54500+	4	1,25004+	1	8,60000+	4	1,05004+	1	209	3	1	223
8,70000+	4	9,29997+	0	9,00000+	4	8,50003+	0	9,08000+	4	8,00002+	0	209	3	1	224
9,12000+	4	9,00002+	0	9,20000+	4	8,00001+	0	9,40000+	4	6,99998+	0	209	3	1	225
9,50000+	4	6,99997+	0	9,51000+	4	7,99997+	0	9.55000+	4	1,25003+	1	209	3	1	226
9,63000+	4	1,00000+	1	9,80000+	4	9,00003+	0	9,95000+	4	8,50001+	0	209	3	1	227
1,00000+	5	8,06667+	0	1,01000+	5	7,20000+	0	1.01500+	5	6,40000+	0	209	3	1	228
1,02000+	5	8,40000+	0	1,02500+	5	1,53002+	1	1.03500+	5	1,20002+	1	209	3	1	229
1,05500+	5	9,40000+	0	1,07000+	5	8,60000+	0	1.07500+	5	1,08002+	1	209	3	1	230
1,08500+	5	9,00000+	0	1,09000+	5	1,25002+	1	1.10000+	5	1,00000+	1	209	3	1	231
1,11000+	5	8,39999+	0	1,12000+	5	7,99999+	0	1.13000+	5	1,50002+	1	209	3	1	232
1,14000+	5	1,15002+	1	1,15000+	5	9,89999+	0	1,16500+	5	8,59999+	0	209	3	1	233
1,17500+	5	7,49997+	0	1,18500+	5	1,28002+	1	1.20500+	5	9,99999+	0	209	3	1	234
1,22500+	5	9,49999+	0	1,25000+	5	9,09999+	0	1,27500+	5	8,79999+	0	209	3	1	235
1,30000+	5	8,69999+	0	1,32000+	5	8,69998+	0	1.33500+	5	9,99998+	0	209	3	1	236
1,35000+	5	8,09996+	0	1,36000+	5	1,22002+	1	1.37500+	5	1,07002+	1	209	3	1	237
1,39000+	5	8,99998+	0	1,41500+	5	8,49998+	0	1,45000+	5	8,09998+	0	209	3	1	238
1,47500+	5	7,24998+	0	1,49000+	5	5,99996+	0	1.50500+	5	1,17002+	1	209	3	1	239
1,51500+	5	1,07002+	1	1,53000+	5	9,39997+	0	1,57500+	5	8,29997+	0	209	3	1	240

1,62500+	5	7,69997+	0	1,64000+	5	8,59997+	0	1,67500+	5	8,99997+	0	209	3	1	241
1,68500+	5	9,19997+	0	1,70000+	5	8,19996+	0	1,73500+	5	7,99996+	0	209	3	1	242
1,75000+	5	6,99996+	0	1,76500+	5	6,49996+	0	1,77500+	5	7,99996+	0	209	3	1	243
1,79000+	5	9,79996+	0	1,81500+	5	8,59996+	0	1,83500+	5	7,99996+	0	209	3	1	244
1,88000+	5	9,79996+	0	1,90000+	5	9,39996+	0	1,92500+	5	7,99995+	0	209	3	1	245
1,95000+	5	8,99995+	0	1,97500+	5	8,89995+	0	2,00000+	5	8,09995+	0	209	3	1	246
2,06000+	5	8,15505+	0	2,08000+	5	8,43705+	0	2,10000+	5	8,14005+	0	209	3	1	247
2,16000+	5	6,96304+	0	2,18000+	5	7,44404+	0	2,20000+	5	7,94604+	0	209	3	1	248
2,23000+	5	8,76604+	0	2,25000+	5	8,56904+	0	2,31000+	5	8,30103+	0	209	3	1	249
2,33000+	5	8,07303+	0	2,36000+	5	7,12403+	0	2,45000+	5	8,33003+	0	209	3	1	250
2,49000+	5	6,80603+	0	2,51000+	5	8,25702+	0	2,56000+	5	7,96202+	0	209	3	1	251
2,58000+	5	8,10302+	0	2,64000+	5	6,38102+	0	2,66000+	5	6,05002+	0	209	3	1	252
2,70000+	5	8,62301+	0	2,73000+	5	8,33801+	0	2,76000+	5	7,82801+	0	209	3	1	253
2,80000+	5	6,03201+	0	2,82000+	5	7,43301+	0	2,86000+	5	7,91001+	0	209	3	1	254
2,88000+	5	6,67401+	0	2,90000+	5	7,03701+	0	2,93000+	5	6,91200+	0	209	3	1	255
2,97000+	5	7,30800+	0	3,01000+	5	6,60000+	0	3,05000+	5	5,41700+	0	209	3	1	256
3,08000+	5	7,62800+	0	3,10000+	5	6,63999+	0	3,14000+	5	7,90499+	0	209	3	1	257
3,16000+	5	6,14199+	0	3,20000+	5	7,50099+	0	3,24000+	5	7,23299+	0	209	3	1	258
3,27000+	5	7,19299+	0	3,31000+	5	6,46698+	0	3,36000+	5	8,06598+	0	209	3	1	259
3,41000+	5	8,43898+	0	3,45000+	5	7,48698+	0	3,49000+	5	6,01898+	0	209	3	1	260
3,53000+	5	8,22397+	0	3,56000+	5	7,29197+	0	3,60000+	5	7,83697+	0	209	3	1	261
3,63000+	5	7,26697+	0	3,66000+	5	8,41697+	0	3,70000+	5	8,17097+	0	209	3	1	262
3,74000+	5	7,31996+	0	3,77000+	5	7,68296+	0	3,83000+	5	6,12096+	0	209	3	1	263
3,87000+	5	7,52496+	0	3,91000+	5	5,66895+	0	3,96000+	5	7,36395+	0	209	3	1	264
4,00000+	5	6,76495+	0	4,05000+	5	7,69505+	0	4,10000+	5	6,90304+	0	209	3	1	265
4,15000+	5	7,96604+	0	4,19000+	5	7,47904+	0	4,20700+	5	6,87104+	0	209	3	1	266
4,21700+	5	6,91604+	0	4,22700+	5	6,57904+	0	4,24700+	5	6,26604+	0	209	3	1	267
4,26700+	5	6,53304+	0	4,28600+	5	7,52904+	0	4,30700+	5	7,36503+	0	209	3	1	268
4,31600+	5	7,05403+	0	4,32600+	5	7,08203+	0	4,33600+	5	7,25303+	0	209	3	1	269
4,34700+	5	7,73703+	0	4,35600+	5	7,10003+	0	4,36600+	5	6,94403+	0	209	3	1	270
4,37600+	5	7,29503+	0	4,38700+	5	7,15403+	0	4,39700+	5	6,80603+	0	209	3	1	271
4,40700+	5	6,77903+	0	4,41700+	5	6,46003+	0	4,42700+	5	6,90703+	0	209	3	1	272
4,43700+	5	6,48803+	0	4,44700+	5	7,52603+	0	4,45700+	5	6,79203+	0	209	3	1	273
4,46700+	5	6,55103+	0	4,47700+	5	7,34103+	0	4,48600+	5	7,21003+	0	209	3	1	274
4,49600+	5	6,90103+	0	4,50600+	5	6,73002+	0	4,51700+	5	6,79702+	0	209	3	1	275
4,52700+	5	6,60902+	0	4,53600+	5	6,63402+	0	4,54600+	5	6,94402+	0	209	3	1	276
4,55600+	5	7,03602+	0	4,56700+	5	6,67002+	0	4,57700+	5	6,60302+	0	209	3	1	277
4,58600+	5	6,12202+	0	4,59700+	5	6,45402+	0	4,60700+	5	6,58902+	0	209	3	1	278
4,61700+	5	6,58402+	0	4,63600+	5	6,09502+	0	4,64700+	5	6,44402+	0	209	3	1	279
4,65600+	5	6,20502+	0	4,66600+	5	6,09002+	0	4,67600+	5	5,60902+	0	209	3	1	280
4,68600+	5	6,26902+	0	4,69700+	5	6,62702+	0	4,70700+	5	6,62201+	0	209	3	1	281
4,71600+	5	6,88301+	0	4,73700+	5	6,20901+	0	4,74600+	5	6,47301+	0	209	3	1	282
4,75600+	5	6,57601+	0	4,76700+	5	6,43501+	0	4,77600+	5	6,97601+	0	209	3	1	283
4,78700+	5	7,21601+	0	4,79700+	5	7,08301+	0	4,81600+	5	6,15701+	0	209	3	1	284
4,82600+	5	5,97901+	0	4,83600+	5	5,98001+	0	4,84700+	5	4,95101+	0	209	3	1	285
4,85700+	5	4,91901+	0	4,86700+	5	6,06001+	0	4,87700+	5	6,54201+	0	209	3	1	286
4,88700+	5	6,46001+	0	4,89700+	5	5,81701+	0	4,90700+	5	6,11000+	0	209	3	1	287
4,91600+	5	6,50300+	0	4,92700+	5	6,59500+	0	4,93700+	5	6,81900+	0	209	3	1	288
4,94700+	5	6,82200+	0	4,95700+	5	6,61100+	0	4,96700+	5	7,13200+	0	209	3	1	289
4,97700+	5	7,36500+	0	4,98700+	5	6,42500+	0	5,00000+	5	6,70089+	0	209	3	1	290
5,00500+	5	6,80700+	0	5,01500+	5	6,78200+	0	5,02500+	5	6,79900+	0	209	3	1	291
5,03600+	5	6,37900+	0	5,04600+	5	6,39000+	0	5,05500+	5	7,02199+	0	209	3	1	292
5,06500+	5	7,15699+	0	5,07500+	5	6,07199+	0	5,08600+	5	6,20599+	0	209	3	1	293
5,09600+	5	6,43699+	0	5,10600+	5	5,69399+	0	5,11600+	5	5,71499+	0	209	3	1	294
5,12600+	5	6,13799+	0	5,13500+	5	6,94499+	0	5,14500+	5	6,71099+	0	209	3	1	295
5,15500+	5	6,74598+	0	5,16600+	5	6,16998+	0	5,17600+	5	6,13098+	0	209	3	1	296
5,18600+	5	5,68098+	0	5,19600+	5	6,00298+	0	5,21600+	5	4,79798+	0	209	3	1	297
5,22600+	5	4,46298+	0	5,23600+	5	4,52998+	0	5,24600+	5	5,60998+	0	209	3	1	298
5,25600+	5	6,37597+	0	5,26500+	5	5,57697+	0	5,27500+	5	6,05997+	0	209	3	1	299
5,28600+	5	6,02597+	0	5,31600+	5	6,18597+	0	5,32500+	5	6,45597+	0	209	3	1	300

5,33500+	5	6,27697+	0	5,34600+	5	6,25697+	0	5,36500+	5	6,95196+	0	209	3	1	301
5,38600+	5	6,37996+	0	5,39500+	5	5,97496+	0	5,41500+	5	6,11296+	0	209	3	1	302
5,42600+	5	6,27196+	0	5,43600+	5	6,27596+	0	5,44500+	5	6,14796+	0	209	3	1	303
5,45500+	5	6,25395+	0	5,46500+	5	6,61495+	0	5,47500+	5	6,64195+	0	209	3	1	304
5,48600+	5	5,85795+	0	5,49600+	5	5,29495+	0	5,50600+	5	4,90905+	0	209	3	1	305
5,52600+	5	5,66905+	0	5,53600+	5	5,82605+	0	5,55600+	5	6,02904+	0	209	3	1	306
5,56600+	5	5,84704+	0	5,57600+	5	5,57304+	0	5,58600+	5	5,55404+	0	209	3	1	307
5,59600+	5	5,82304+	0	5,60600+	5	5,83504+	0	5,61500+	5	6,24304+	0	209	3	1	308
5,62500+	5	6,53504+	0	5,63500+	5	6,72804+	0	5,66600+	5	6,61403+	0	209	3	1	309
5,67600+	5	6,06703+	0	5,68500+	5	6,35603+	0	5,69500+	5	6,35603+	0	209	3	1	310
5,70500+	5	5,86003+	0	5,71600+	5	5,59503+	0	5,72600+	5	5,44303+	0	209	3	1	311
5,73500+	5	6,00003+	0	5,74500+	5	6,15803+	0	5,75600+	5	6,01002+	0	209	3	1	312
5,76600+	5	6,06402+	0	5,77600+	5	6,50002+	0	5,78500+	5	6,43502+	0	209	3	1	313
5,79600+	5	5,95302+	0	5,80600+	5	5,84002+	0	5,81500+	5	5,61302+	0	209	3	1	314
5,82600+	5	5,75902+	0	5,83600+	5	6,15402+	0	5,84500+	5	6,86102+	0	209	3	1	315
5,85600+	5	6,44301+	0	5,86600+	5	6,57501+	0	5,87600+	5	6,56001+	0	209	3	1	316
5,88600+	5	6,05901+	0	5,89500+	5	5,94701+	0	5,90500+	5	6,15901+	0	209	3	1	317
5,91500+	5	6,26401+	0	5,92500+	5	5,99901+	0	5,93500+	5	6,04701+	0	209	3	1	318
5,94600+	5	6,18301+	0	5,95600+	5	5,81900+	0	5,96500+	5	6,00400+	0	209	3	1	319
5,97500+	5	6,37600+	0	5,98500+	5	6,50900+	0	5,99500+	5	6,20200+	0	209	3	1	320
6,00500+	5	5,99000+	0	6,01500+	5	6,11200+	0	6,02500+	5	6,43400+	0	209	3	1	321
6,03600+	5	6,32700+	0	6,04600+	5	5,79900+	0	6,05500+	5	5,83499+	0	209	3	1	322
6,06500+	5	6,02799+	0	6,08500+	5	5,70899+	0	6,09500+	5	5,99499+	0	209	3	1	323
6,10600+	5	6,03699+	0	6,11500+	5	5,62499+	0	6,12500+	5	5,48699+	0	209	3	1	324
6,14500+	5	6,17399+	0	6,15600+	5	6,39298+	0	6,16600+	5	5,35998+	0	209	3	1	325
6,17500+	5	5,45198+	0	6,18500+	5	5,39898+	0	6,21500+	5	5,93398+	0	209	3	1	326
6,22500+	5	6,01298+	0	6,24500+	5	5,77598+	0	6,25600+	5	6,32797+	0	209	3	1	327
6,26600+	5	6,59597+	0	6,27600+	5	5,86597+	0	6,28500+	5	5,50197+	0	209	3	1	328
6,29400+	5	5,57597+	0	6,30500+	5	5,81697+	0	6,31700+	5	5,42097+	0	209	3	1	329
6,33600+	5	5,80097+	0	6,34600+	5	5,84597+	0	6,35600+	5	5,81696+	0	209	3	1	330
6,38500+	5	6,31496+	0	6,39500+	5	6,11496+	0	6,41500+	5	5,40796+	0	209	3	1	331
6,42400+	5	5,64696+	0	6,43400+	5	6,34096+	0	6,44500+	5	6,03796+	0	209	3	1	332
6,45400+	5	5,49395+	0	6,46500+	5	5,77395+	0	6,47500+	5	5,60795+	0	209	3	1	333
6,48500+	5	5,69195+	0	6,49500+	5	5,86495+	0	6,50500+	5	5,66905+	0	209	3	1	334
6,51500+	5	5,76405+	0	6,52600+	5	5,75705+	0	6,53600+	5	5,59705+	0	209	3	1	335
6,54600+	5	5,82105+	0	6,55600+	5	6,28504+	0	6,56700+	5	5,56404+	0	209	3	1	336
6,57600+	5	5,52404+	0	6,58400+	5	6,27304+	0	6,59500+	5	6,23704+	0	209	3	1	337
6,60500+	5	6,01504+	0	6,61600+	5	6,08404+	0	6,62600+	5	6,35404+	0	209	3	1	338
6,63500+	5	6,25004+	0	6,64500+	5	5,98404+	0	6,65500+	5	5,83303+	0	209	3	1	339
6,66600+	5	5,52703+	0	6,67600+	5	5,56303+	0	6,68500+	5	5,93303+	0	209	3	1	340
6,69500+	5	5,72603+	0	6,70500+	5	5,95003+	0	6,71600+	5	5,95403+	0	209	3	1	341
6,72600+	5	5,90503+	0	6,73600+	5	5,54703+	0	6,74500+	5	5,35403+	0	209	3	1	342
6,75600+	5	5,33802+	0	6,77500+	5	5,67002+	0	6,79500+	5	4,85302+	0	209	3	1	343
6,80500+	5	4,51702+	0	6,82600+	5	5,43502+	0	6,83600+	5	5,51402+	0	209	3	1	344
6,84600+	5	5,86702+	0	6,85500+	5	5,48701+	0	6,86500+	5	5,30901+	0	209	3	1	345
6,87600+	5	5,47901+	0	6,88500+	5	5,38601+	0	6,89500+	5	5,35401+	0	209	3	1	346
6,91600+	5	5,51301+	0	6,92600+	5	5,70501+	0	6,93500+	5	5,10301+	0	209	3	1	347
6,94500+	5	5,22801+	0	6,95500+	5	5,58300+	0	6,96500+	5	5,45500+	0	209	3	1	348
6,97600+	5	5,62000+	0	6,98600+	5	5,26900+	0	6,99600+	5	5,48100+	0	209	3	1	349
7,00600+	5	5,60300+	0	7,01600+	5	5,63300+	0	7,02600+	5	5,99600+	0	209	3	1	350
7,04600+	5	5,35300+	0	7,05600+	5	5,42899+	0	7,06600+	5	5,65299+	0	209	3	1	351
7,07600+	5	5,94099+	0	7,08600+	5	5,84999+	0	7,09500+	5	5,70799+	0	209	3	1	352
7,10500+	5	5,38399+	0	7,11500+	5	5,37299+	0	7,12600+	5	5,17499+	0	209	3	1	353
7,13500+	5	5,49199+	0	7,14500+	5	5,93399+	0	7,15600+	5	5,75598+	0	209	3	1	354
7,16500+	5	5,68598+	0	7,18500+	5	5,81298+	0	7,19600+	5	5,32698+	0	209	3	1	355
7,21500+	5	5,07598+	0	7,22500+	5	5,10698+	0	7,23600+	5	5,39898+	0	209	3	1	356
7,24500+	5	5,36698+	0	7,25500+	5	5,12097+	0	7,26500+	5	4,99897+	0	209	3	1	357
7,27500+	5	4,81897+	0	7,29600+	5	5,66997+	0	7,30500+	5	5,87597+	0	209	3	1	358
7,31600+	5	5,80997+	0	7,33500+	5	5,35597+	0	7,34500+	5	5,37697+	0	209	3	1	359
7,35600+	5	5,46296+	0	7,36500+	5	5,72296+	0	7,37500+	5	5,57596+	0	209	3	1	360
7,38500+	5	5,64096+	0	7,39600+	5	5,93196+	0	7,40500+	5	5,65996+	0	209	3	1	361

7,42600+	5	5,44196+	0	7,43600+	5	5,44996+	0	7,44600+	5	5,38596+	0	209	3	1	362
7,45500+	5	5,19295+	0	7,47500+	5	4,88695+	0	7,48600+	5	4,92295+	0	209	3	1	363
7,51200+	5	5,65705+	0	7,53200+	5	5,26305+	0	7,55100+	5	5,12104+	0	209	3	1	364
7,57100+	5	5,43704+	0	7,59200+	5	5,90104+	0	7,61200+	5	5,55804+	0	209	3	1	365
7,63100+	5	5,13104+	0	7,69200+	5	5,37403+	0	7,71200+	5	5,19603+	0	209	3	1	366
7,73200+	5	4,96403+	0	7,75200+	5	4,91102+	0	7,79100+	5	5,44902+	0	209	3	1	367
7,81200+	5	5,47202+	0	7,83200+	5	5,09602+	0	7,85200+	5	5,04501+	0	209	3	1	368
7,87200+	5	5,21201+	0	7,89200+	5	5,01801+	0	7,91200+	5	5,09801+	0	209	3	1	369
7,93200+	5	5,39701+	0	7,95100+	5	4,86900+	0	7,97100+	5	4,93800+	0	209	3	1	370
7,99100+	5	4,79500+	0	8,01300+	5	5,22900+	0	8,03200+	5	4,80100+	0	209	3	1	371
8,05100+	5	4,80499+	0	8,07200+	5	5,20799+	0	8,11000+	5	5,07299+	0	209	3	1	372
8,13200+	5	5,28299+	0	8,15100+	5	4,91098+	0	8,19200+	5	4,95696+	0	209	3	1	373
8,21200+	5	4,71696+	0	8,23200+	5	4,77298+	0	8,25200+	5	5,32597+	0	209	3	1	374
8,27200+	5	5,56197+	0	8,29200+	5	5,15997+	0	8,31200+	5	5,25697+	0	209	3	1	375
8,33300+	5	4,81997+	0	8,35100+	5	4,72996+	0	8,39100+	5	5,09796+	0	209	3	1	376
8,45100+	5	4.54395+	0	8,47000+	5	4,95595+	0	8,49100+	5	4,92395+	0	209	3	1	377
8,51200+	5	5,33605+	0	8,55000+	5	5,12205+	0	8,57100+	5	5,08104+	0	209	3	1	378
8,61200+	5	5,29504+	0	8,63100+	5	5,43804+	0	8,65000+	5	5,32504+	0	209	3	1	379
8,69200+	5	4,75303+	0	8,71300+	5	4,72403+	0	8,73300+	5	4,90803+	0	209	3	1	380
8,77200+	5	5,41602+	0	8,79200+	5	4,97602+	0	8,81200+	5	4,79602+	0	209	3	1	381
8,85300+	5	5,11801+	0	8,87300+	5	5,00201+	0	8,89300+	5	4,77401+	0	209	3	1	382
8,91300+	5	5,00601+	0	8,93200+	5	5,09101+	0	8,95000+	5	4,91000+	0	209	3	1	383
8,97100+	5	4,98800+	0	8,99100+	5	5,13000+	0	9,00910+	5	4,88944+	0	209	3	1	384
9,01200+	5	4,85102+	0	9,03200+	5	4,81296+	0	9,05100+	5	5,10196+	0	209	3	1	385
9,07000+	5	5,19296+	0	9,09100+	5	4,82005+	0	9,11200+	5	4,76303+	0	209	3	1	386
9,13100+	5	5,14403+	0	9,15000+	5	5,25903+	0	9,17100+	5	5,51502+	0	209	3	1	387
9,19300+	5	5,37704+	0	9,21200+	5	4,92804+	0	9,23100+	5	5,26204+	0	209	3	1	388
9,25300+	5	5,05197+	0	9,27200+	5	4,71697+	0	9,29200+	5	4,70101+	0	209	3	1	389
9,31100+	5	5,03401+	0	9,35300+	5	4,77298+	0	9,39200+	5	4,99602+	0	209	3	1	390
9,41200+	5	5,35796+	0	9,43200+	5	5,44100+	0	9,45200+	5	4,98305+	0	209	3	1	391
9,47200+	5	4,73699+	0	9,49200+	5	4,83303+	0	9,51200+	5	4,86197+	0	209	3	1	392
9,55100+	5	4,50701+	0	9,59100+	5	5,33500+	0	9,61200+	5	5,31198+	0	209	3	1	393
9,63200+	5	5,11703+	0	9,65100+	5	5,02603+	0	9,67100+	5	4,81797+	0	209	3	1	394
9,71100+	5	5,00995+	0	9,73100+	5	4,92199+	0	9,77100+	5	5,11898+	0	209	3	1	395
9,79000+	5	5,06598+	0	9,81100+	5	5,19196+	0	9,83200+	5	5,20105+	0	209	3	1	396
9,85100+	5	5,17205+	0	9,87000+	5	5,22705+	0	9,89200+	5	5,05197+	0	209	3	1	397
9,91300+	5	4,97696+	0	9,93200+	5	5,07596+	0	9,95100+	5	4,96496+	0	209	3	1	398
9,97100+	5	5,18200+	0	1,00000+	6	5,11116+	0	1,00500+	6	4,98903+	0	209	3	1	399
1,01600+	6	4,96896+	0	1,02000+	6	5,13901+	0	1,02500+	6	5,35604+	0	209	3	1	400
1,03500+	6	5,02103+	0	1,04000+	6	4,92285+	0	1,04400+	6	4,84204+	0	209	3	1	401
1,05000+	6	4,85344+	0	1,05500+	6	4,85602+	0	1,06000+	6	5,00118+	0	209	3	1	402
1,06500+	6	5,15702+	0	1,07000+	6	5,01589+	0	1,07400+	6	4,90400+	0	209	3	1	403
1,08000+	6	4,99791+	0	1,08500+	6	5,08496+	0	1,09000+	6	4,89685+	0	209	3	1	404
1,09500+	6	4,66795+	0	1.10000+	6	4,84690+	0	1,10500+	6	5,03397+	0	209	3	1	405
1,11000+	6	5,04226+	0	1,11400+	6	5,04897+	0	1.12000+	6	4,98276+	0	209	3	1	406
1,12400+	6	4,91396+	0	1.12500+	6	4,92109+	0	1,13000+	6	4,97693+	0	209	3	1	407
1,13400+	6	5,01496+	0	1,13900+	6	4,97244+	0	1,14700+	6	4,89808+	0	209	3	1	408
1,15500+	6	4,84901+	0	1,16000+	6	4,94995+	0	1,16400+	6	5,04996+	0	209	3	1	409
1,16500+	6	5,05432+	0	1,17000+	6	5,07561+	0	1,17500+	6	5,09701+	0	209	3	1	410
1,18000+	6	5,08176+	0	1,18500+	6	5,10204+	0	1,18600+	6	5,08006+	0	209	3	1	411
1,19000+	6	5,01515+	0	1,19400+	6	4,93300+	0	1,19500+	6	4,94456+	0	209	3	1	412
1,20000+	6	4,98846+	0	1,21200+	6	5,17157+	0	1,21400+	6	5,20095+	0	209	3	1	413
1,22200+	6	5,06655+	0	1,23300+	6	4,89246+	0	1,23400+	6	4,87302+	0	209	3	1	414
1,23800+	6	4,92720+	0	1,24300+	6	4,97732+	0	1,25300+	6	5,12167+	0	209	3	1	415
1,25400+	6	5,13297+	0	1,26200+	6	4,96761+	0	1,26500+	6	4,93902+	0	209	3	1	416
1,27000+	6	4,98546+	0	1,27500+	6	5,03196+	0	1,28000+	6	4,95818+	0	209	3	1	417
1,28400+	6	4,89512+	0	1,29400+	6	4,98911+	0	1,30000+	6	5,01332+	0	209	3	1	418
1,31300+	6	5,09420+	0	1,31400+	6	5,10197+	0	1,32600+	6	5,08558+	0	209	3	1	419
1,33300+	6	5,07435+	0	1,34000+	6	5,07163+	0	1,34400+	6	5,07498+	0	209	3	1	420
1,35300+	6	5,18692+	0	1,35400+	6	5,20102+	0	1,36400+	6	5,16703+	0	209	3	1	421

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1,36600+ 6 5,12322+ 0 1.37300+ 6 4,94441+ 0 1,37400+ 6 4,91798+ 0 209 3  1  422
1,38000+ 6 5,02914+ 0 1,38500+ 6 5,15499+ 0 1,38600+ 6 5,14651+ 0 209 3  1  423
1,39200+ 6 5,12700+ 0 1.40000+ 6 5,11100+ 0 1,40500+ 6 5,12930+ 0 209 3  1  424
1,41000+ 6 5,16129+ 0 1,41500+ 6 5,23603+ 0 1,41600+ 6 5,24109+ 0 209 3  1  425
1,42000+ 6 5,26913+ 0 1,42500+ 6 5,26899+ 0 1,43000+ 6 5,27373+ 0 209 3  1  426
1,43500+ 6 5,28098+ 0 1,44000+ 6 5,13848+ 0 1,44500+ 6 5,00098+ 0 209 3  1  427
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1,47000+ 6 5,43756+ 0 1.47400+ 6 5,49800+ 0 1,47500+ 6 5,47426+ 0 209 3  1  429
1,48000+ 6 5,32786+ 0 1,48500+ 6 5,22296+ 0 1,49000+ 6 5,21245+ 0 209 3  1  430
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1,53500+ 6 5,28396+ 0 1,54500+ 6 5,07000+ 0 1,55400+ 6 5,31603+ 0 209 3  1  432
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1,60400+ 6 5,70200+ 0 1,61500+ 6 5,70799+ 0 1,61620+ 6 5,66726+ 0 209 3  1  434
1,62500+ 6 5,37601+ 0 1.63400+ 6 5,39399+ 0 1,64500+ 6 5,38296+ 0 209 3  1  435
1,65500+ 6 5,41099+ 0 1,66400+ 6 5,24098+ 0 1,68400+ 6 5,71003+ 0 209 3  1  436
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1,72500+ 6 5,64299+ 0 1,73500+ 6 5,69202+ 0 1,74500+ 6 5,57705+ 0 209 3  1  438
1,75000+ 6 5,65376+ 0 1,75500+ 6 5,72997+ 0 1,76500+ 6 5,63900+ 0 209 3  1  439
1,77500+ 6 5,67103+ 0 1,78400+ 6 5,79502+ 0 1,79500+ 6 5,72099+ 0 209 3  1  440
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2,85000+ 6 7,80823+ 0 2,94600+ 6 7,91804+ 0 3,00000+ 6 7,93533+ 0 209 3  1  452
3,01440+ 6 7,93987+ 0 3,13600+ 6 7,97227+ 0 3.14700+ 6 7,98775+ 0 209 3  1  453
3,20000+ 6 7,91405+ 0 3,24700+ 6 7,84352+ 0 3.25000+ 6 7,84498+ 0 209 3  1  454
3,27670+ 6 7,83325+ 0 3,34600+ 6 7,82763+ 0 3,40000+ 6 7,84454+ 0 209 3  1  455
3,50000+ 6 7,86285+ 0 3,60000+ 6 7,89682+ 0 3,64400+ 6 7,90803+ 0 209 3  1  456
3,74500+ 6 7,98403+ 0 3,75000+ 6 7,98449+ 0 3,80000+ 6 7,97735+ 0 209 3  1  457
3,94700+ 6 7,93796+ 0 4,00000+ 6 7,89844+ 0 4,14500+ 6 7,79699+ 0 209 3  1  458
4,25000+ 6 7,81007+ 0 4,35200+ 6 7,84901+ 0 4,50000+ 6 7,74680+ 0 209 3  1  459
5,00000+ 6 7,47150+ 0 5,50000+ 6 7,09600+ 0 6.00000+ 6 6,63050+ 0 209 3  1  460
7,00000+ 6 5,95250+ 0 7,44240+ 6 5,73748+ 0 7,50000+ 6 5.73799+ 0 209 3  1  461
8,00000+ 6 5,51250+ 0 8,20000+ 6 5,44230+ 0 8,40000+ 6 5,40210+ 0 209 3  1  462
8,50000+ 6 5,40700+ 0 8,60900+ 6 5,39290+ 0 8,80000+ 6 5,35470+ 0 209 3  1  463
9,00000+ 6 5,30650+ 0 9,50000+ 6 5,22100+ 0 9,90000+ 6 5,16460+ 0 209 3  1  464
1,00000+ 7 5,15050+ 0 1,04000+ 7 5,15261+ 0 1,05000+ 7 5,14064+ 0 209 3  1  465
1,06000+ 7 5,14467+ 0 1,10000+ 7 5,13634+ 0 1,15000+ 7 5,12088+ 0 209 3  1  466
1,20000+ 7 5,11598+ 0 1,25000+ 7 5,18116+ 0 1,29000+ 7 5,20531+ 0 209 3  1  467
1,30000+ 7 5,21135+ 0 1,35000+ 7 5,27173+ 0 1,39000+ 7 5,30403+ 0 209 3  1  468
1,40000+ 7 5,31210+ 0 1,43160+ 7 5,34398+ 0 1,46000+ 7 5,38094+ 0 209 3  1  469
1,50000+ 7 5,43372+ 0 1,55000+ 7 5,45898+ 0 1,60000+ 7 5,53424+ 0 209 3  1  470
1,70000+ 7 5,60625+ 0 1,75000+ 7 5,64976+ 0 1,80000+ 7 5,66826+ 0 209 3  1  471
1,85000+ 7 5,70514+ 0 1,90000+ 7 5,76701+ 0 1,95000+ 7 5,84726+ 0 209 3  1  472
2,00000+ 7 5,87251+ 0                                              209 3  1  473
                                                                   209 3  0  474
8,32090+ 4 2,07185+ 2          0          0          0          0 209 3  2  475
0,     + 0 0,     + 0          0          0          1       1057 209 3  2  476
      1057          2                                              209 3  2  477
1,00000- 5 9,34700+ 0 1,00000+ 2 9,34700+ 0 3,00000+ 2 9,15700+ 0 209 3  2  478
5,00000+ 2 8,75690+ 0 6,00000+ 2 8,30700+ 0 6.50000+ 2 7,80700+ 0 209 3  2  479
7,00000+ 2 6,56700+ 0 7,31100+ 2 5,46790+ 0 7,37700+ 2 5,20040+ 0 209 3  2  480
7,44400+ 2 5,11280+ 0 7,51100+ 2 4,91530+ 0 7,57900+ 2 4,35760+ 0 209 3  2  481
7,61400+ 2 4,59360+ 0 7,64800+ 2 5,20980+ 0 7,71900+ 2 6,31180+ 0 209 3  2  482
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7,75400+	2	8,34780+	0	7,79000+	2	1,11140+	1	7,82600+	2	1,86700+	1	209	3	2	483
7,86200+	2	2,99560+	1	7,88600+	2	5,02130+	1	7,89800+	2	5,75720+	1	209	3	2	484
7,91100+	2	6,87100+	1	7,92300+	2	1,03070+	2	7,93500+	2	1,60570+	2	209	3	2	485
7,94700+	2	1,89070+	2	7,96000+	2	2,63860+	2	7,97200+	2	3,70160+	2	209	3	2	486
7,98400+	2	4,64960+	2	7,99700+	2	5,13560+	2	8,00900+	2	5,11460+	2	209	3	2	487
8,02200+	2	4,61160+	2	8,03400+	2	3,60660+	2	8,04700+	2	3,60960+	2	209	3	2	488
8,05900+	2	2,46970+	2	8,07200+	2	2,06870+	2	8,09700+	2	1,38970+	2	209	3	2	489
8,11000+	2	1,20970+	2	8,12200+	2	1,08470+	2	8,14800+	2	8,79650+	1	209	3	2	490
8,17400+	2	7,77880+	1	8,18600+	2	6,20690+	1	8,19900+	2	5,69800+	1	209	3	2	491
8,22500+	2	5,02230+	1	8,23800+	2	4,63940+	1	8,26400+	2	4,31270+	1	209	3	2	492
8,29000+	2	4,21690+	1	8,35600+	2	3,06360+	1	8,43600+	2	2,79240+	1	209	3	2	493
8,51800+	2	2,34920+	1	8,64200+	2	2,05450+	1	8,89900+	2	1,69510+	1	209	3	2	494
9,16700+	2	1,54350+	1	9,59300+	2	1,38850+	1	1,00500+	3	1,26140+	1	209	3	2	495
1,10600+	3	1,18660+	1	1,36200+	3	1,06480+	1	1,52400+	3	1,05080+	1	209	3	2	496
1,71700+	3	9,94670+	0	1,95400+	3	9,03910+	0	2,16400+	3	7,17550+	0	209	3	2	497
2,18100+	3	6,68430+	0	2,19800+	3	6,42310+	0	2,21500+	3	6,88160+	0	209	3	2	498
2,23200+	3	6,88010+	0	2,24400+	3	6,36900+	0	2,25000+	3	9,36850+	0	209	3	2	499
2,25500+	3	1,10380+	1	2,26100+	3	1,18580+	1	2,26700+	3	1,38970+	1	209	3	2	500
2,27300+	3	2,47460+	1	2,28500+	3	3,81050+	1	2,29100+	3	5,51850+	1	209	3	2	501
2,29700+	3	7,95340+	1	2,30300+	3	1,46750+	2	2,30900+	3	2,19750+	2	209	3	2	502
2,31500+	3	3,05250+	2	2,32200+	3	2,51150+	2	2,32800+	3	2,01450+	2	209	3	2	503
2,33400+	3	1,19450+	2	2,34000+	3	8,95100+	1	2,34600+	3	7,42300+	1	209	3	2	504
2,35300+	3	6,28390+	1	2,35900+	3	5,56390+	1	2,36500+	3	4,59580+	1	209	3	2	505
2,37200+	3	3,94080+	1	2,37800+	3	3,66870+	1	2,38400+	3	3,50660+	1	209	3	2	506
2,39100+	3	3,24960+	1	2,39700+	3	3,11350+	1	2,40400+	3	2,81650+	1	209	3	2	507
2,41700+	3	2,70070+	1	2,42300+	3	2,46870+	1	2,43000+	3	2,24680+	1	209	3	2	508
2,46300+	3	1,88220+	1	2,52400+	3	1,62660+	1	2,58800+	3	1,45850+	1	209	3	2	509
2,65500+	3	1,39900+	1	2,72400+	3	1,31460+	1	2,94700+	3	1,22250+	1	209	3	2	510
3,20000+	3	1,17170+	1	3,22400+	3	1,17770+	1	3,27900+	3	1,10670+	1	209	3	2	511
3,34500+	3	1,49870+	1	3,34900+	3	2,34870+	1	3,35200+	3	1,61870+	1	209	3	2	512
3,39300+	3	1,11570+	1	3,43200+	3	1,13270+	1	3,51300+	3	1,09970+	1	209	3	2	513
3,98700+	3	1,09270+	1	4,06200+	3	1,06860+	1	4,30200+	3	1,07310+	1	209	3	2	514
4,38700+	3	1,05090+	1	4,41600+	3	1,02790+	1	4,45100+	3	1,30780+	1	209	3	2	515
4,45600+	3	2,09780+	1	4,46100+	3	1,19780+	1	4,47400+	3	1,11280+	1	209	3	2	516
4,50400+	3	1,01770+	1	4,85000+	3	9,29650+	0	4,95200+	3	8,87340+	0	209	3	2	517
4,98600+	3	8,71240+	0	5,05700+	3	7,68430+	0	5,09200+	3	1,32160+	1	209	3	2	518
5,09600+	3	1,20660+	1	5,10300+	3	4,37660+	1	5,10800+	3	9,43360+	1	209	3	2	519
5,11300+	3	1,18770+	2	5,11800+	3	7,78770+	1	5,12800+	3	3,45870+	1	209	3	2	520
5,13300+	3	3,01470+	1	5,14300+	3	1,80580+	1	5,17300+	3	1,27690+	1	209	3	2	521
5,18900+	3	1,23100+	1	5,31400+	3	1,11150+	1	5,36200+	3	1,02970+	1	209	3	2	522
5,41000+	3	1,02090+	1	5,46000+	3	9,96090+	0	5,77000+	3	9,65510+	0	209	3	2	523
5,82500+	3	9,39570+	0	6,10800+	3	9,52770+	0	6,28900+	3	9,73830+	0	209	3	2	524
6,47700+	3	9,81890+	0	6,51700+	3	1,59890+	1	6,52300+	3	2,11690+	1	209	3	2	525
6,52900+	3	1,48890+	1	6,67400+	3	9,34950+	0	6,88000+	3	9,37010+	0	209	3	2	526
7,09600+	3	9,09050+	0	7,32200+	3	9,07030+	0	7,55900+	3	9,12020+	0	209	3	2	527
7,80800+	3	8,68010+	0	8,34400+	3	8,79900+	0	8,63300+	3	8,56810+	0	209	3	2	528
8,93700+	3	8,65720+	0	9,01100+	3	1,34870+	1	9,01800+	3	1,44870+	1	209	3	2	529
9,14900+	3	1,13850+	1	9,15300+	3	1,44850+	1	9,15800+	3	1,14850+	1	209	3	2	530
9,23800+	3	8,18390+	0	9,59600+	3	8,33980+	0	9,75200+	3	8,47600+	0	209	3	2	531
9,75700+	3	1,17780+	1	9,76200+	3	1,33780+	1	9,76800+	3	1,11780+	1	209	3	2	532
9,77300+	3	8,97770+	0	9,95300+	3	7,68560+	0	1,01300+	4	7,73750+	0	209	3	2	533
1,09200+	4	6,89740+	0	1,14500+	4	5,79370+	0	1,16000+	4	5,99760+	0	209	3	2	534
1,16300+	4	6,55840+	0	1,17000+	4	7,45020+	0	1,18100+	4	9,44310+	0	209	3	2	535
1,18200+	4	1,07730+	1	1,18600+	4	1,18040+	1	1,18800+	4	1,39350+	1	209	3	2	536
1,19100+	4	2,02960+	1	1,19500+	4	2,10370+	1	1,19700+	4	2,58870+	1	209	3	2	537
1,20100+	4	3,47380+	1	1,20300+	4	4,09390+	1	1,20500+	4	5,30400+	1	209	3	2	538
1,20800+	4	6,20760+	1	1,21000+	4	7,61410+	1	1,21300+	4	8,31020+	1	209	3	2	539
1,21800+	4	9,72640+	1	1,21900+	4	1,04940+	2	1,22400+	4	8,55160+	1	209	3	2	540
1,22800+	4	7,86470+	1	1,23200+	4	6,66460+	1	1,23400+	4	6,39490+	1	209	3	2	541
1,23500+	4	5,47290+	1	1,23600+	4	5,33500+	1	1,24100+	4	4,30410+	1	209	3	2	542

1,24700+	4	4,19830+	1	1,24800+	4	3,73530+	1	1,25500+	4	3,33560+	1	209	3	2	543
1,25800+	4	2,94370+	1	1,26400+	4	2,73180+	1	1,27000+	4	2,46000+	1	209	3	2	544
1,28200+	4	2,14840+	1	1,30000+	4	1,82600+	1	1,35000+	4	1,41320+	1	209	3	2	545
1,39800+	4	1,22640+	1	1,50100+	4	9,06750+	0	1,50300+	4	8,01760+	0	209	3	2	546
1,53400+	4	6,84880+	0	1,53800+	4	8,70890+	0	1,54200+	4	9,90910+	0	209	3	2	547
1,54400+	4	1,20790+	1	1,54700+	4	2,03790+	1	1,54800+	4	2,59790+	1	209	3	2	548
1,54900+	4	2,94790+	1	1,55000+	4	3,90690+	1	1,55100+	4	4,26790+	1	209	3	2	549
1,55200+	4	4,81790+	1	1,55400+	4	6,26800+	1	1,55500+	4	8,72200+	1	209	3	2	550
1,55700+	4	7,34800+	1	1,55800+	4	6,51900+	1	1,56000+	4	5,68800+	1	209	3	2	551
1,56600+	4	4,29100+	1	1,56900+	4	3,27600+	1	1,57300+	4	2,87800+	1	209	3	2	552
1,57400+	4	2,33100+	1	1,60000+	4	1,92810+	1	1,61600+	4	1,62820+	1	209	3	2	553
1,64600+	4	1,46230+	1	1,72100+	4	1,29260+	1	1,74200+	4	1,39870+	1	209	3	2	554
1,74300+	4	1,61170+	1	1,74400+	4	1,72870+	1	1,74600+	4	1,43370+	1	209	3	2	555
1,74900+	4	1,29670+	1	1,90100+	4	1,20290+	1	2,00200+	4	1,15600+	1	209	3	2	556
2,07300+	4	1,13700+	1	2,09700+	4	1,36700+	1	2,10200+	4	1,54900+	1	209	3	2	557
2,10500+	4	1,98900+	1	2,10700+	4	1,90900+	1	2,11100+	4	1,80900+	1	209	3	2	558
2,14900+	4	1,11600+	1	2,40200+	4	1,08300+	1	2,49600+	4	1,10110+	1	209	3	2	559
2,50800+	4	1,36910+	1	2,51300+	4	1,14110+	1	2,51800+	4	1,24310+	1	209	3	2	560
2,51900+	4	1,37910+	1	2,52300+	4	1,98910+	1	2,52700+	4	2,67910+	1	209	3	2	561
2,53000+	4	2,44910+	1	2,53200+	4	1,68910+	1	2,53500+	4	1,16310+	1	209	3	2	562
2,53900+	4	1,20910+	1	2,54600+	4	1,07710+	1	2,56300+	4	1,04210+	1	209	3	2	563
2,60900+	4	1,07910+	1	2,64900+	4	1,02020+	1	2,68500+	4	8,40200+	0	209	3	2	564
2,69700+	4	7,39220+	0	2,69900+	4	8,39220+	0	2,70000+	4	1,09920+	1	209	3	2	565
2,70300+	4	1,42220+	1	2,70600+	4	1,95920+	1	2,70800+	4	2,18670+	1	209	3	2	566
2,71100+	4	1,89720+	1	2,71400+	4	1,54520+	1	2,71600+	4	1,55220+	1	209	3	2	567
2,72300+	4	1,27420+	1	2,74000+	4	1,13730+	1	2,80600+	4	9,72320+	0	209	3	2	568
2,90100+	4	9,53360+	0	3,00100+	4	9,55390+	0	3,10600+	4	8,64370+	0	209	3	2	569
3,20000+	4	7,94360+	0	3,29600+	4	6,04310+	0	3,30400+	4	7,91310+	0	209	3	2	570
3,31300+	4	8,72300+	0	3,31400+	4	1,04930+	1	3,32100+	4	1,37730+	1	209	3	2	571
3,32400+	4	1,85730+	1	3,32900+	4	2,60230+	1	3,33800+	4	3,31030+	1	209	3	2	572
3,34000+	4	3,63330+	1	3,35100+	4	3,20030+	1	3,36400+	4	2,40830+	1	209	3	2	573
3,38400+	4	1,79430+	1	3,39500+	4	1,64030+	1	3,48900+	4	1,17820+	1	209	3	2	574
3,62100+	4	1,12820+	1	3,69000+	4	1,11130+	1	3,71800+	4	1,14930+	1	209	3	2	575
3,72500+	4	1,70430+	1	3,73200+	4	1,19930+	1	3,74900+	4	1,08730+	1	209	3	2	576
3,76100+	4	1,05130+	1	3,79700+	4	9,93300+	0	3,83400+	4	1,08530+	1	209	3	2	577
3,87100+	4	1,03240+	1	3,90900+	4	1,09340+	1	3,91300+	4	1,16340+	1	209	3	2	578
3,91700+	4	1,26140+	1	3,92400+	4	1,03940+	1	3,94700+	4	9,40420+	0	209	3	2	579
3,98600+	4	1,01940+	1	4,02600+	4	9,57250+	0	4,06600+	4	9,09930+	0	209	3	2	580
4,10700+	4	9,75610+	0	4,14800+	4	1,02030+	1	4,19000+	4	9,63950+	0	209	3	2	581
4,22300+	4	1,11770+	1	4,23000+	4	1,18760+	1	4,23200+	4	1,17160+	1	209	3	2	582
4,24200+	4	1,49550+	1	4,24700+	4	1,15250+	1	4,26100+	4	9,47380+	0	209	3	2	583
4,27600+	4	9,16260+	0	4,32000+	4	8,83910+	0	4,36400+	4	8,69560+	0	209	3	2	584
4,41000+	4	8,30200+	0	4,45600+	4	8,24830+	0	4,50200+	4	7,56500+	0	209	3	2	585
4,51300+	4	6,95590+	0	4,53400+	4	8,45760+	0	4,54400+	4	1,00580+	1	209	3	2	586
4,55000+	4	1,60090+	1	4,55500+	4	2,21590+	1	4,56000+	4	2,71600+	1	209	3	2	587
4,56600+	4	2,99600+	1	4,57100+	4	2,70610+	1	4,57600+	4	2,07610+	1	209	3	2	588
4,59800+	4	1,60230+	1	4,64700+	4	1,30770+	1	4,69700+	4	1,18510+	1	209	3	2	589
4,74700+	4	1,06650+	1	4,79900+	4	1,09700+	1	4,85100+	4	1,06940+	1	209	3	2	590
4,95800+	4	1,04930+	1	5,02500+	4	9,87650+	0	5,07100+	4	1,00070+	1	209	3	2	591
5,11900+	4	1,03670+	1	5,16600+	4	9,45660+	0	5,21500+	4	9,07660+	0	209	3	2	592
5,28100+	4	1,21670+	1	5,29700+	4	1,06570+	1	5,31400+	4	9,71660+	0	209	3	2	593
5,33100+	4	8,99660+	0	5,34800+	4	9,19670+	0	5,36500+	4	9,92670+	0	209	3	2	594
5,38200+	4	1,36970+	1	5,39900+	4	1,18670+	1	5,41600+	4	1,07170+	1	209	3	2	595
5,46800+	4	1,05170+	1	5,52100+	4	9,87670+	0	5,57500+	4	9,97680+	0	209	3	2	596
5,62900+	4	9,77680+	0	5,68500+	4	9,90680+	0	5,74100+	4	9,53680+	0	209	3	2	597
5,79700+	4	9,90690+	0	5,85500+	4	9,40690+	0	5,97300+	4	9,30690+	0	209	3	2	598
6,03400+	4	9,17700+	0	6,09500+	4	8,61700+	0	6,13600+	4	8,45700+	0	209	3	2	599
6,15700+	4	1,11970+	1	6,17800+	4	1,24670+	1	6,19900+	4	1,08970+	1	209	3	2	600
6,24200+	4	9,95710+	0	6,26500+	4	1,01170+	1	6,41600+	4	9,53710+	0	209	3	2	601
6,48300+	4	9,53720+	0	6,55200+	4	9,07720+	0	6,62100+	4	8,52720+	0	209	3	2	602
6,69100+	4	8,85730+	0	6,76300+	4	7,77730+	0	6,80300+	4	6,79730+	0	209	3	2	603

6,86200+	4	6,49730+	0	6,88200+	4	7,49730+	0	6,69200+	4	8,99740+	0	209	3	2	604
6,90200+	4	1,32970+	1	6,91200+	4	1,79970+	1	6,92200+	4	2,55770+	1	209	3	2	605
6,93600+	4	2,47970+	1	7,01200+	4	1,58970+	1	7,04300+	4	1,41970+	1	209	3	2	606
7,10500+	4	1,22970+	1	7,19900+	4	1,11270+	1	7,23100+	4	1,04570+	1	209	3	2	607
7,25200+	4	1,18570+	1	7,26300+	4	1,39970+	1	7,27300+	4	1,25270+	1	209	3	2	608
7,29500+	4	1,13970+	1	7,39300+	4	1,02670+	1	7,49300+	4	1,01470+	1	209	3	2	609
8,00000+	4	8,79750+	0	8,10000+	4	7,99750+	0	8,15000+	4	8,59760+	0	209	3	2	610
8,18000+	4	2,02980+	1	8,20000+	4	1,39960+	1	8,22000+	4	9,99760+	0	209	3	2	611
8,25000+	4	8,99760+	0	8,48000+	4	7,99760+	0	8,54500+	4	1,24980+	1	209	3	2	612
8,60000+	4	1,04980+	1	8,70000+	4	9,29760+	0	9,00000+	4	8,49770+	0	209	3	2	613
9,08000+	4	7,99770+	0	9,12000+	4	8,99770+	0	9,20000+	4	7,99770+	0	209	3	2	614
9,40000+	4	6,99770+	0	9,50000+	4	6,99770+	0	9,51000+	4	7,99770+	0	209	3	2	615
9,55000+	4	1,24980+	1	9,63000+	4	9,99780+	0	9,80000+	4	8,99780+	0	209	3	2	616
9,95000+	4	8,49780+	0	1,01000+	5	7,19760+	0	1,01500+	5	6,39780+	0	209	3	2	617
1,02000+	5	8,39780+	0	1,02500+	5	1,52980+	1	1,03500+	5	1,19980+	1	209	3	2	618
1,05500+	5	9,39780+	0	1,07000+	5	8,59780+	0	1,07500+	5	1,07980+	1	209	3	2	619
1,08500+	5	8,99780+	0	1,09000+	5	1,24980+	1	1,10000+	5	9,99780+	0	209	3	2	620
1,11000+	5	8,39780+	0	1,12000+	5	7,99760+	0	1,13000+	5	1,49980+	1	209	3	2	621
1,14000+	5	1,14980+	1	1,15000+	5	9,89780+	0	1,16500+	5	8,59780+	0	209	3	2	622
1,17500+	5	7,89780+	0	1,18500+	5	1,27980+	1	1,20500+	5	9,99780+	0	209	3	2	623
1,22500+	5	9,49780+	0	1,25000+	5	9,09780+	0	1,27500+	5	8,79780+	0	209	3	2	624
1,30000+	5	8,69780+	0	1,32000+	5	8,69780+	0	1,33500+	5	9,99780+	0	209	3	2	625
1,35000+	5	8,09780+	0	1,36000+	5	1,21980+	1	1,37500+	5	1,06980+	1	209	3	2	626
1,39000+	5	8,99780+	0	1,41500+	5	8,49780+	0	1,45000+	5	8,09780+	0	209	3	2	627
1,47500+	5	7,24780+	0	1,49000+	5	5,99760+	0	1,50500+	5	1,16980+	1	209	3	2	628
1,51500+	5	1,06980+	1	1,53000+	5	9,39780+	0	1,57500+	5	8,29780+	0	209	3	2	629
1,62500+	5	7,69780+	0	1,64000+	5	8,59780+	0	1,67500+	5	8,99780+	0	209	3	2	630
1,68500+	5	9,19780+	0	1,70000+	5	8,19780+	0	1,73500+	5	7,99780+	0	209	3	2	631
1,75000+	5	6,99780+	0	1,76500+	5	6,49780+	0	1,77500+	5	7,99780+	0	209	3	2	632
1,79000+	5	9,79780+	0	1,81500+	5	8,59780+	0	1,83500+	5	7,99780+	0	209	3	2	633
1,88000+	5	9,79780+	0	1,90000+	5	9,39780+	0	1,92500+	5	7,99780+	0	209	3	2	634
1,95000+	5	8,99780+	0	1,97500+	5	8,69780+	0	2,00000+	5	8,09780+	0	209	3	2	635
2,06000+	5	8,15290+	0	2,08000+	5	8,43490+	0	2,10000+	5	8,13790+	0	209	3	2	636
2,16000+	5	6,96090+	0	2,18000+	5	7,44190+	0	2,20000+	5	7,04390+	0	209	3	2	637
2,23000+	5	8,76590+	0	2,25000+	5	8,56690+	0	2,31000+	5	8,29890+	0	209	3	2	638
2,33000+	5	8,07090+	0	2,36000+	5	7,12190+	0	2,45000+	5	8,37790+	0	209	3	2	639
2,49000+	5	6,80390+	0	2,51000+	5	8,25490+	0	2,56000+	5	7,95990+	0	209	3	2	640
2,58000+	5	8,10090+	0	2,64000+	5	6,37690+	0	2,66000+	5	6,04790+	0	209	3	2	641
2,70000+	5	8,62090+	0	2,73000+	5	8,33590+	0	2,76000+	5	7,82590+	0	209	3	2	642
2,80000+	5	6,02990+	0	2,82000+	5	7,43090+	0	2,86000+	5	7,90790+	0	209	3	2	643
2,88000+	5	6,67190+	0	2,90000+	5	7,03490+	0	2,93000+	5	6,90990+	0	209	3	2	644
2,97000+	5	7,30590+	0	3,01000+	5	6,79790+	0	3,05000+	5	5,41490+	0	209	3	2	645
,08000+	5	7,62590+	0	3,10000+	5	6,63790+	0	3,14000+	5	7,90290+	0	209	3	2	646
,16000+	5	6,13990+	0	3,20000+	5	7,49890+	0	3,24000+	5	7,23090+	0	209	3	2	647
,27000+	5	7,19090+	0	3,31000+	5	8,46690+	0	3,36000+	5	8,06390+	0	209	3	2	648
,41000+	5	8,43690+	0	3,45000+	5	7,48490+	0	3,49000+	5	6,01690+	0	209	3	2	649
,53000+	5	8,22190+	0	3,56000+	5	7,28990+	0	3,60000+	5	7,83490+	0	209	3	2	650
,63000+	5	7,26490+	0	3,66000+	5	8,41690+	0	3,70000+	5	8,16890+	0	209	3	2	651
,74000+	5	7,31790+	0	3,77000+	5	7,68090+	0	3,83000+	5	6,11890+	0	209	3	2	652
,87000+	5	7,52290+	0	3,91000+	5	5,66690+	0	3,96000+	5	7,36190+	0	209	3	2	653
,00000+	5	6,76290+	0	4,05000+	5	7,69300+	0	4,10000+	5	6,90100+	0	209	3	2	654
,15000+	5	7,96400+	0	4,19000+	5	7,47700+	0	4,20700+	5	6,56900+	0	209	3	2	655
,21700+	5	6,91400+	0	4,22700+	5	6,57700+	0	4,24700+	5	6,26400+	0	209	3	2	656
,26700+	5	6,53100+	0	4,28600+	5	7,52700+	0	4,30700+	5	7,36300+	0	209	3	2	657
,31600+	5	7,05200+	0	4,32600+	5	7,08000+	0	4,33600+	5	7,25100+	0	209	3	2	658
,34700+	5	7,73500+	0	4,35600+	5	7,09800+	0	4,36600+	5	6,94200+	0	209	3	2	659
,37600+	5	7,29300+	0	4,38700+	5	7,15200+	0	4,39700+	5	6,80400+	0	209	3	2	660
,40700+	5	6,77700+	0	4,41700+	5	6,45800+	0	4,42700+	5	6,90500+	0	209	3	2	661
,43700+	5	6,48600+	0	4,44700+	5	7,52400+	0	4,45700+	5	6,79000+	0	209	3	2	662
,46700+	5	6,54900+	0	4,47700+	5	7,33900+	0	4,48600+	5	7,20800+	0	209	3	2	663

4,49600+	5	6,89900+	0	4,50600+	5	6,72800+	0	4.51700+	5	6,79500+	0	209	3	2	664
4,52700+	5	6,60700+	0	4,53600+	5	6,63200+	0	4,54600+	5	6,94200+	0	209	3	2	665
4,55600+	5	7,03400+	0	4,56700+	5	6,66800+	0	4,57700+	5	6,60100+	0	209	3	2	666
4,58600+	5	6,12000+	0	4,59700+	5	6,45200+	0	4,60700+	5	6,58700+	0	209	3	2	667
4,61700+	5	6,58200+	0	4,63600+	5	6,09300+	0	4.64700+	5	6,44200+	0	209	3	2	668
4,65600+	5	6,20300+	0	4,66600+	5	6,08600+	0	4,67600+	5	5,60700+	0	209	3	2	669
4,68600+	5	6,26700+	0	4,69700+	5	6,62500+	0	4.70700+	5	6,62000+	0	209	3	2	670
4,71600+	5	6,88100+	0	4,73700+	5	6,20700+	0	4,74600+	5	6,47100+	0	209	3	2	671
4,75600+	5	6,57600+	0	4,76700+	5	6,43300+	0	4,77600+	5	6,97400+	0	209	3	2	672
4,78700+	5	7,21400+	0	4,79700+	5	7,08100+	0	4.81600+	5	6,15500+	0	209	3	2	673
4,82600+	5	5,97700+	0	4,83600+	5	5,97800+	0	4,84700+	5	4,94900+	0	209	3	2	674
4,85700+	5	4,91700+	0	4,86700+	5	6,05600+	0	4.87700+	5	6,54000+	0	209	3	2	675
4,88700+	5	6,45800+	0	4,89700+	5	5,81500+	0	4,90700+	5	6,10800+	0	209	3	2	676
4,91600+	5	6,50100+	0	4,92700+	5	6,59300+	0	4,93700+	5	6,61700+	0	209	3	2	677
4,94700+	5	6,82000+	0	4,95700+	5	6,60900+	0	4.96700+	5	7,13000+	0	209	3	2	678
4,97700+	5	7.36300+	0	4,98700+	5	6.42300+	0	5,00500+	5	6.80500+	0	209	3	2	679
5,01500+	5	6,78000+	0	5,02500+	5	6,79700+	0	5,03600+	5	6,37700+	0	209	3	2	680
5,04600+	5	6,38800+	0	5,05500+	5	7,02000+	0	5,06500+	5	7,15500+	0	209	3	2	681
5,07500+	5	6,07000+	0	5,08600+	5	6,20400+	0	5,09600+	5	6,43500+	0	209	3	2	682
5,10600+	5	5,89200+	0	5,11600+	5	5,71300+	0	5,12600+	5	6,13600+	0	209	3	2	683
5,13500+	5	6,94300+	0	5,14500+	5	6,70900+	0	5,15500+	5	6,74400+	0	209	3	2	684
5,16600+	5	6,16800+	0	5,17600+	5	6,12900+	0	5,18600+	5	5,87900+	0	209	3	2	685
5,19600+	5	6,00100+	0	5,21600+	5	4,79600+	0	5,22600+	5	4,48100+	0	209	3	2	686
5,23600+	5	4,52800+	0	5,24600+	5	5,60800+	0	5,25600+	5	6.37400+	0	209	3	2	687
5,26500+	5	5,57700+	0	5,27500+	5	6,05800+	0	5,28600+	5	6,02400+	0	209	3	2	688
5,31600+	5	6,18400+	0	5,32500+	5	6,45400+	0	5.33500+	5	6,27500+	0	209	3	2	689
5,34600+	5	6,25500+	0	5,36500+	5	6,95000+	0	5,38600+	5	6,37800+	0	209	3	2	690
5,39500+	5	5,97300+	0	5.41500+	5	6,11100+	0	5.42600+	5	6,27000+	0	209	3	2	691
5,43600+	5	6,27400+	0	5,44500+	5	6.14600+	0	5.45500+	5	6,25200+	0	209	3	2	692
5,46500+	5	6,61300+	0	5.47500+	5	6,64000+	0	5,48600+	5	5,85600+	0	209	3	2	693
5,49600+	5	5,29300+	0	5,50600+	5	4,90710+	0	5.52600+	5	5,66710+	0	209	3	2	694
5,53600+	5	5,32410+	0	5,55500+	5	6.02710+	0	5,56600+	5	5.84510+	0	209	3	2	695
5,57600+	5	5,57110+	0	5,58600+	5	5,55210+	0	5.59600+	5	5,62110+	0	209	3	2	696
5,60600+	5	5,83610+	0	5,61500+	5	6,24110+	0	5,62500+	5	6,53310+	0	209	3	2	697
5,63500+	5	6,72610+	0	5,66600+	5	6,61210+	0	5,67600+	5	6,06510+	0	209	3	2	698
5,68500+	5	6,35410+	0	5,69500+	5	6,35410+	0	5,70500+	5	5,85810+	0	209	3	2	699
5,71600+	5	5,59310+	0	5.72600+	5	5,44110+	0	5.73500+	5	5,99810+	0	209	3	2	700
5,74500+	5	6,15610+	0	5.75600+	5	6,00810+	0	5.76600+	5	6,06210+	0	209	3	2	701
5,77600+	5	6,49810+	0	5,78500+	5	6,43310+	0	5,79600+	5	5,95110+	0	209	3	2	702
5,80600+	5	5,83810+	0	5,81500+	5	5,61110+	0	5,82600+	5	5,75710+	0	209	3	2	703
5,83600+	5	6,15210+	0	5,84500+	5	6,85910+	0	5,85600+	5	6,44110+	0	209	3	2	704
5,86600+	5	6,57310+	0	5,87600+	5	6,55810+	0	5,88600+	5	6,05710+	0	209	3	2	705
5,89500+	5	5,94510+	0	5,90500+	5	6,15710+	0	5,91500+	5	6,26210+	0	209	3	2	706
5,92500+	5	5,99710+	0	5,93500+	5	6,04510+	0	5,94600+	5	6,18110+	0	209	3	2	707
5,95600+	5	5,81710+	0	5,96500+	5	6,00210+	0	5,97600+	5	6,37410+	0	209	3	2	708
5,98500+	5	6,50710+	0	5,99500+	5	6,20010+	0	6,00500+	5	5,98810+	0	209	3	2	709
6,01500+	5	6,11010+	0	6,02500+	5	6,43210+	0	6,03600+	5	6,32510+	0	209	3	2	710
6,04600+	5	5,79710+	0	6,05500+	5	5,83310+	0	6,06500+	5	6,02610+	0	209	3	2	711
6,08500+	5	5,70710+	0	6,09500+	5	5,99310+	0	6,10600+	5	6,03510+	0	209	3	2	712
6,11500+	5	5,62310+	0	6,12500+	5	5,48510+	0	6,14500+	5	6,17210+	0	209	3	2	713
6,15600+	5	6,39110+	0	6,16600+	5	5,35810+	0	6,17500+	5	5,45010+	0	209	3	2	714
6,18500+	5	5,39710+	0	6,21500+	5	5,93210+	0	6,22500+	5	6,01110+	0	209	3	2	715
6,24500+	5	5,77410+	0	6,25600+	5	6,32610+	0	6,26600+	5	6,59410+	0	209	3	2	716
6,27600+	5	5,86410+	0	6,28500+	5	5,50610+	0	6,29400+	5	5.57410+	0	209	3	2	717
6,30500+	5	5,81510+	0	6.31700+	5	5,41910+	0	6.33600+	5	5,79910+	0	209	3	2	718
6,34600+	5	5,84410+	0	6.35600+	5	5,81510+	0	6.38500+	5	6,31310+	0	209	3	2	719
6,39500+	5	6,11310+	0	6,41500+	5	5,40610+	0	6,42400+	5	5,64510+	0	209	3	2	720
6,43400+	5	6,33910+	0	6,44500+	5	6,03610+	0	6,45400+	5	5,49210+	0	209	3	2	721
6,46500+	5	5,77210+	0	6,47500+	5	5,60610+	0	6,48500+	5	5,69010+	0	209	3	2	722
6,49500+	5	5,86310+	0	6,50500+	5	5.66720+	0	6,51500+	5	5,76220+	0	209	3	2	723
6,52600+	5	5,75520+	0	6,53600+	5	5,59520+	0	6,54600+	5	5,81920+	0	209	3	2	724

6,55600+	5	6,26320+	0	6,56700+	5	5,56220+	0	6,57600+	5	5,52220+	0	209	3	2	725
6,58400+	5	6,27120+	0	6,59500+	5	6,23520+	0	6,60500+	5	6,01320+	0	209	3	2	726
6,61600+	5	6,08220+	0	6,62600+	5	6,35220+	0	6,63500+	5	6,24820+	0	209	3	2	727
6,64500+	5	5,96220+	0	6,65500+	5	5,83120+	0	6,66600+	5	5,52520+	0	209	3	2	728
6,67600+	5	5,56120+	0	6,68500+	5	5,93120+	0	6,69500+	5	5,72420+	0	209	3	2	729
6,70500+	5	5,94820+	0	6,71600+	5	5,95220+	0	6,72600+	5	5,90320+	0	209	3	2	730
6,73600+	5	5,54520+	0	6,74500+	5	5,35220+	0	6,75600+	5	5,33620+	0	209	3	2	731
6,77500+	5	5,66820+	0	6,79500+	5	4,85120+	0	6,80500+	5	4,51520+	0	209	3	2	732
6,82600+	5	5,43320+	0	6,83600+	5	5,51220+	0	6,84600+	5	5,86520+	0	209	3	2	733
6,85500+	5	5,46520+	0	6,86500+	5	5,30720+	0	6,87600+	5	5,47720+	0	209	3	2	734
6,88500+	5	5,38420+	0	6,89500+	5	5,35220+	0	6,91600+	5	5,51120+	0	209	3	2	735
6,92600+	5	5,70320+	0	6,93500+	5	5,10120+	0	6,94500+	5	5,22620+	0	209	3	2	736
6,95500+	5	5,58120+	0	6,96500+	5	5,45320+	0	6,97600+	5	5,61820+	0	209	3	2	737
6,98500+	5	5,26720+	0	6,99600+	5	5,47920+	0	7,00600+	5	5,60120+	0	209	3	2	738
7,01600+	5	5,63120+	0	7,02600+	5	5,99420+	0	7,04600+	5	5,35120+	0	209	3	2	739
7,05600+	5	5,42720+	0	7,06600+	5	5,65120+	0	7,07600+	5	5,93920+	0	209	3	2	740
7,08600+	5	5,84820+	0	7,09500+	5	5,70620+	0	7,10500+	5	5,38220+	0	209	3	2	741
7,11500+	5	5,37120+	0	7,12600+	5	5,17320+	0	7,13500+	5	5,49020+	0	209	3	2	742
7,14500+	5	5,93220+	0	7,15600+	5	5,75420+	0	7,16500+	5	5,66420+	0	209	3	2	743
7,18500+	5	5,81120+	0	7,19600+	5	5,32520+	0	7,21500+	5	5,07420+	0	209	3	2	744
7,22500+	5	5,10520+	0	7,23600+	5	5,39720+	0	7,24500+	5	5,36520+	0	209	3	2	745
7,25500+	5	5,11920+	0	7,26500+	5	4,99720+	0	7,27500+	5	4,81720+	0	209	3	2	746
7,29600+	5	5,66820+	0	7,30500+	5	5,87420+	0	7,31600+	5	5,80820+	0	209	3	2	747
7,33500+	5	5,35420+	0	7,34500+	5	5,37520+	0	7,35600+	5	5,46120+	0	209	3	2	748
7,36500+	5	5,72120+	0	7,37500+	5	5,57420+	0	7,38500+	5	5,63920+	0	209	3	2	749
7,39600+	5	5,93020+	0	7,40500+	5	5,65620+	0	7,42600+	5	5,44020+	0	209	3	2	750
7,43600+	5	5,44620+	0	7,44600+	5	5,38420+	0	7,45500+	5	5,19120+	0	209	3	2	751
7,47500+	5	4,88520+	0	7,48600+	5	4,92120+	0	7,51200+	5	5,65530+	0	209	3	2	752
7,53200+	5	5,26130+	0	7,55100+	5	5,11930+	0	7,57100+	5	5,43530+	0	209	3	2	753
7,59200+	5	5,69930+	0	7,61200+	5	5,55630+	0	7,63100+	5	5,12930+	0	209	3	2	754
7,65200+	5	5,37230+	0	7,71200+	5	5,19430+	0	7,73200+	5	4,96230+	0	209	3	2	755
7,75200+	5	4,98930+	0	7,79100+	5	5,44730+	0	7,81200+	5	5,47030+	0	209	3	2	756
7,83200+	5	5,09430+	0	7,85200+	5	5,04330+	0	7,87200+	5	5,21030+	0	209	3	2	757
7,89200+	5	5,01630+	0	7,91200+	5	5,09630+	0	7,93200+	5	5,39530+	0	209	3	2	758
7,95100+	5	4,86730+	0	7,97100+	5	4,93630+	0	7,99100+	5	4,79330+	0	209	3	2	759
8,01300+	5	5,22730+	0	8,03200+	5	4,79930+	0	8,05100+	5	4,80330+	0	209	3	2	760
8,07200+	5	5,20630+	0	8,11000+	5	5,07130+	0	8,13200+	5	5,28130+	0	209	3	2	761
8,15100+	5	4,90930+	0	8,19200+	5	4,95930+	0	8,21200+	5	4,71530+	0	209	3	2	762
8,23200+	5	4,77130+	0	8,25200+	5	5,32430+	0	8,27200+	5	5,58030+	0	209	3	2	763
8,29200+	5	5,15830+	0	8,31200+	5	5,25530+	0	8,33300+	5	4,81830+	0	209	3	2	764
8,35100+	5	4,72830+	0	8,39100+	5	5,09630+	0	8,45100+	5	4,54230+	0	209	3	2	765
8,47000+	5	4,95430+	0	8,49100+	5	4,92230+	0	8,51200+	5	5,33440+	0	209	3	2	766
8,55000+	5	5,12040+	0	8,57100+	5	5,07940+	0	8,61200+	5	5,29340+	0	209	3	2	767
8,63100+	5	5,43640+	0	8,65000+	5	5,32340+	0	8,69200+	5	4,75140+	0	209	3	2	768
8,71300+	5	4,72240+	0	8,73300+	5	4,90640+	0	8,77200+	5	5,41440+	0	209	3	2	769
8,79200+	5	4,97440+	0	8,81200+	5	4,79440+	0	8,85300+	5	5,11640+	0	209	3	2	770
8,87300+	5	5,00340+	0	8,89300+	5	4,77240+	0	8,91300+	5	5,00440+	0	209	3	2	771
8,93200+	5	5,08940+	0	8,95000+	5	4,90840+	0	8,97100+	5	4,96640+	0	209	3	2	772
8,99100+	5	5,12040+	0	9,01200+	5	4,84930+	0	9,03200+	5	4,81040+	0	209	3	2	773
9,05100+	5	5,09860+	0	9,07000+	5	5,18880+	0	9,09100+	5	4,81500+	0	209	3	2	774
9,11200+	5	4,75710+	0	9,13100+	5	5,13730+	0	9,15000+	5	5,25150+	0	209	3	2	775
9,17100+	5	5,50660+	0	9,19300+	5	5,36770+	0	9,21200+	5	4,91790+	0	209	3	2	776
9,23100+	5	5,25110+	0	9,25300+	5	5,04010+	0	9,27200+	5	4,70430+	0	209	3	2	777
9,29200+	5	4,68750+	0	9,31100+	5	5,01970+	0	9,35300+	5	4,75690+	0	209	3	2	778
9,39200+	5	4,97830+	0	9,41200+	5	5,33940+	0	9,43200+	5	5,42160+	0	209	3	2	779
9,45200+	5	4,96260+	0	9,47200+	5	4,71590+	0	9,49200+	5	4,81110+	0	209	3	2	780
9,51200+	5	4,83920+	0	9,55100+	5	4,48260+	0	9,59100+	5	5,30890+	0	209	3	2	781
9,61200+	5	5,26500+	0	9,63200+	5	5,08920+	0	9,65100+	5	4,99940+	0	209	3	2	782
9,67100+	5	4,73850+	0	9,71100+	5	4,97880+	0	9,73100+	5	4,89000+	0	209	3	2	783
9,77100+	5	5,08530+	0	9,79000+	5	5,03150+	0	9,81100+	5	5,15660+	0	209	3	2	784

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9,83200+ 5 5,16480+ 0 9,85100+ 5 5,13500+ 0 9,87000+ 5 5,18920+ 0 209 3  2  785
9,89200+ 5 5,01320+ 0 9,91300+ 5 4,93730+ 0 9.93200+ 5 5,03550+ 0 209 3  2  786
9,95100+ 5 4,92370+ 0 9,97100+ 5 5,13990+ 0 1,00500+ 6 4,94360+ 0 209 3  2  787
1,01600+ 6 4,91890+ 0 1,02500+ 6 5,29770+ 0 1,03500+ 6 4,94950+ 0 209 3  2  788
1,04400+ 6 4,76090+ 0 1,05500+ 6 4,77350+ 0 1,06500+ 6 5,07010+ 0 209 3  2  789
1,07400+ 6 4,80250+ 0 1,08500+ 6 4,95530+ 0 1,09500+ 6 4,53390+ 0 209 3  2  790
1,10500+ 6 4,92820+ 0 1,11000+ 6 4,94660+ 0 1,11400+ 6 4,93870+ 0 209 3  2  791
1,12400+ 6 4,79190+ 0 1,13400+ 6 4,88840+ 0 1.15500+ 6 4,71290+ 0 209 3  2  792
1,16400+ 6 4,87460+ 0 1,16500+ 6 4,67190+ 0 1,17000+ 6 4,89580+ 0 209 3  2  793
1,17500+ 6 4,88830+ 0 1,18500+ 6 4,95820+ 0 1.19400+ 6 4,78680+ 0 209 3  2  794
1,21400+ 6 5,04800+ 0 1,23400+ 6 4,68440+ 0 1,25400+ 6 4,98050+ 0 209 3  2  795
1,26500+ 6 4,79190+ 0 1,27000+ 6 4,80060+ 0 1,27500+ 6 4,86850+ 0 209 3  2  796
1,28400+ 6 4,74020+ 0 1,29400+ 6 4,84930+ 0 1,31400+ 6 4,96020+ 0 209 3  2  797
1,34000+ 6 4,86690+ 0 1,34400+ 6 4,87510+ 0 1,35400+ 6 5,01210+ 0 209 3  2  798
1,36400+ 6 4,97420+ 0 1,37400+ 6 4,75120+ 0 1,38500+ 6 5,00040+ 0 209 3  2  799
1,39200+ 6 4,92340+ 0 1,40000+ 6 4,89610+ 0 1,41500+ 6 5,04130+ 0 209 3  2  800
1,41600+ 6 5,03870+ 0 1,42500+ 6 5,10180+ 0 1,43500+ 6 5,11630+ 0 209 3  2  801
1,44500+ 6 4,83130+ 0 1,47400+ 6 5,26200+ 0 1,48500+ 6 4,99800+ 0 209 3  2  802
1,49000+ 6 5,01390+ 0 1,49500+ 6 5,00780+ 0 1,52500+ 6 5,11990+ 0 209 3  2  803
1,53500+ 6 5,07270+ 0 1,54500+ 6 4,85260+ 0 1.55400+ 6 5,09310+ 0 209 3  2  804
1,57400+ 6 5,27180+ 0 1.59400+ 6 5,21250+ 0 1.60400+ 6 5,44920+ 0 209 3  2  805
1,61500+ 6 5,45060+ 0 1,62500+ 6 5,10740+ 0 1,63400+ 6 5,11420+ 0 209 3  2  806
1,64500+ 6 5,05950+ 0 1,65500+ 6 5,10510+ 0 1,66400+ 6 4,92390+ 0 209 3  2  807
1,66400+ 6 5,36810+ 0 1,69400+ 6 5,08260+ 0 1,70400+ 6 5,12420+ 0 209 3  2  808
1,71500+ 6 5,09350+ 0 1,72500+ 6 5,25010+ 0 1,73500+ 6 5,28670+ 0 209 3  2  809
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1,77500+ 6 5,21850+ 0 1,78400+ 6 5,33220+ 0 1,79500+ 6 5,24560+ 0 209 3  2  811
1,80500+ 6 5,25320+ 0 1,81400+ 6 5,23840+ 0 1.83400+ 6 5,48340+ 0 209 3  2  812
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1,87500+ 6 5,36170+ 0 1,88500+ 6 5,20420+ 0 1,89500+ 6 5,40270+ 0 209 3  2  814
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1,93500+ 6 5,72970+ 0 1,94500+ 6 5,57020+ 0 1,95400+ 6 5,53650+ 0 209 3  2  816
1,96400+ 6 5,69000+ 0 1,97500+ 6 5,50770+ 0 1,98500+ 6 5,69820+ 0 209 3  2  817
1,99400+ 6 5,79350+ 0 2,05200+ 6 5,72350+ 0 2,45200+ 6 6,32820+ 0 209 3  2  818
2,57130+ 6 6,46590+ 0 2,65600+ 6 6,47720+ 0 2,70000+ 6 6,47400+ 0 209 3  2  819
2,75520+ 6 6,52610+ 0 2,80000+ 6 6,50650+ 0 2,94600+ 6 6,55430+ 0 209 3  2  820
3,00000+ 6 6,52750+ 0 3,01440+ 6 6,52940+ 0 3,14700+ 6 6,46170+ 0 209 3  2  821
3,24700+ 6 6,13090+ 0 3,34600+ 6 6,00020+ 0 3,50000+ 6 5,85760+ 0 209 3  2  822
3,64400+ 6 5,82000+ 0 3,74500+ 6 5,84390+ 0 3,94700+ 6 5,75850+ 0 209 3  2  823
4,14500+ 6 5,58020+ 0 4,25000+ 6 5,57220+ 0 4,35200+ 6 5,59840+ 0 209 3  2  824
5,00000+ 6 5.07000+ 0 5,50000+ 6 4,65000+ 0 6,00000+ 6 4,13000+ 0 209 3  2  825
7,00000+ 6 3,35000+ 0 7,50000+ 6 3,14000+ 0 8,00000+ 6 2,91000+ 0 209 3  2  826
8,50000+ 6 2,81000+ 0 9,50000+ 6 2,62000+ 0 1,00000+ 7 2,55000+ 0 209 3  2  827
1,10000+ 7 2,54000+ 0 1.15000+ 7 2,53000+ 0 1.20000+ 7 2,53000+ 0 209 3  2  828
1,30000+ 7 2,62000+ 0 1,40000+ 7 2,73000+ 0 1,50000+ 7 2,85000+ 0 209 3  2  829
2,00000+ 7 3,32000+ 0                                                 209 3  2  830
                                                                      209 3  0  831
8,32090+ 4 2,07185+ 2          0           0           0           0 209 3  4  832
0,       + 0-8,96600+ 5        0           0           1         110 209 3  4  833
       110            2                                               209 3  4  834
9,00910+ 5 0,       + 0 1,02000+ 6 5,02600- 2 1,04000+ 6 7,66500- 2 209 3  4  835
1,05000+ 6 8,41900- 2 1.06000+ 6 7,79100- 2 1,07000+ 6 9,29900- 2 209 3  4  836
1,08000+ 6 1,10600- 1 1.08500+ 6 1,28200- 1 1,09000+ 6 1,50800- 1 209 3  4  837
1,10000+ 6 1,14400- 1 1,11000+ 6 9,42400- 2 1.12000+ 6 1,30700- 1 209 3  4  838
1,12500+ 6 1,18100- 1 1.13000+ 6 1,25700- 1 1,13900+ 6 1,24400- 1 209 3  4  839
1,14700+ 6 1,16900- 1 1,16000+ 6 1,45800- 1 1,16500+ 6 1,81000- 1 209 3  4  840
1,17000+ 6 1,73400- 1 1,17500+ 6 2,07300- 1 1.18000+ 6 1,57100- 1 209 3  4  841
1,18600+ 6 1,39500- 1 1,19000+ 6 1,50600- 1 1,19500+ 6 1,43300- 1 209 3  4  842
1,20000+ 6 1,21900- 1 1,21200+ 6 1,48300- 1 1,22200+ 6 1,64600- 1 209 3  4  843
1,23300+ 6 1,84500- 1 1,23600+ 6 1,82200- 1 1,24300+ 6 1,58300- 1 209 3  4  844
1,25300+ 6 1,54600- 1 1,26200+ 6 1,23100- 1 1,27000+ 6 1,83500- 1 209 3  4  845
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1,27500+ 6 1,62100- 1 1,28000+ 6 1,59600- 1 1.30000+ 6 1,29400- 1 209 3  4  846
1,31300+ 6 1.36200- 1 1,32600+ 6 1,67100- 1 1,33300+ 6 1.81000- 1 209 3  4  847
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1,39200+ 6 2,02300- 1 1,40000+ 6 2,13600- 1 1,40500+ 6 1,83500- 1 209 3  4  850
1,41000+ 6 1,67100- 1 1,41600+ 6 2.01100- 1 1,42000+ 6 2,01100- 1 209 3  4  851
1,42500+ 6 1,65900- 1 1,43000+ 6 1,63400- 1 1,44000+ 6 1,63400- 1 209 3  4  852
1,44500+ 6 1,68400- 1 1,45000+ 6 1,99800- 1 1,46000+ 6 1,86000- 1 209 3  4  853
1,46600+ 6 2,16100- 1 1,47000+ 6 2,33700- 1 1,47500+ 6 2,35000- 1 209 3  4  854
1,48000+ 6 2,08600- 1 1,48500+ 6 2,23700- 1 1,49000+ 6 1,97300- 1 209 3  4  855
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1,75000+ 6 4,22635- 1 1,80000+ 6 4,80000- 1 2,00000+ 6 6,30000- 1 209 3  4  857
2,20000+ 6 7,51000- 1 2,25000+ 6 7,73500- 1 2,40000+ 6 8,32000- 1 209 3  4  858
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2,70000+ 6 1,12850+ 0 2,75520+ 6 1,17459+ 0 2,80000+ 6 1,24200+ 0 209 3  4  860
2,85000+ 6 1,28450+ 0 3,00000+ 6 1,40700+ 0 3,01440+ 6 1,40964+ 0 209 3  4  861
3,13600+ 6 1,50415+ 0 3,20000+ 6 1,62687+ 0 3,25000+ 6 1,71725+ 0 209 3  4  862
3,27670+ 6 1,74077+ 0 3,40000+ 6 1,89357+ 0 3,50000+ 6 2,00450+ 0 209 3  4  863
3,60000+ 6 2,06460+ 0 3,75000+ 6 2,14200+ 0 3,80000+ 6 2,15600+ 0 209 3  4  864
4,00000+ 6 2,18700+ 0 4,25000+ 6 2,23725+ 0 4,50000+ 6 2,26850+ 0 209 3  4  865
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8,50000+ 6 2,15150+ 0 9,50000+ 6 1,35050+ 0 1,00000+ 7 9,90000- 1 209 3  4  868
1,05000+ 7 8,10000- 1 1,10000+ 7 7,10000- 1 1,15000+ 7 6,10000- 1 209 3  4  869
1.20000+ 7 5,30000- 1 1,30000+ 7 4,20000- 1 1.40000+ 7 3,50000- 1 209 3  4  870
1,50000+ 7 2,90000- 1 2,00000+ 7 2,60000- 1                       209 3  4  871
                                                                  209 3  0  872
8,32090+ 4 2,07185+ 2          0          0          0          0 209 3 16  873
0,       + 0-7,40670+ 6        0          0          1         23 209 3 16  874
         23          2                                            209 3 16  875
7,44240+ 6 0,       + 0 6.00000+ 6 1,50000- 1 8.20000+ 6 2,40000- 1 209 3 16  876
8,40000+ 6 3,60000- 1 8,60000+ 6 5,30000- 1 8,80000+ 6 6,90000- 1 209 3 16  877
9,00000+ 6 8,40000- 1 9,50000+ 6 1,25000+ 0 1,00000+ 7 1,61000+ 0 209 3 16  878
1,04000+ 7 1,76000+ 0 1.06000+ 7 1,81000+ 0 1,15000+ 7 1,98000+ 0 209 3 16  879
1,25000+ 7 2,13000+ 0 1,35000+ 7 2,21000+ 0 1,50000+ 7 2.27000+ 0 209 3 16  880
1,60000+ 7 2,16000+ 0 1.70000+ 7 1,96100+ 0 1,75000+ 7 1,81300+ 0 209 3 16  881
1,80000+ 7 1,64000+ 0 1,85000+ 7 1,43000+ 0 1,90000+ 7 1,27000+ 0 209 3 16  882
1,95000+ 7 1,13000+ 0 2,00000+ 7 1,02000+ 0                       209 3 16  883
                                                                  209 3  0  884
8,32090+ 4 2,07185+ 2          0          0          0          0 209 3 17  885
0,       + 0-1,42470+ 7        0          0          1          9 209 3 17  886
         9           2                                            209 3 17  887
1,43160+ 7 0,       + 0 1,50000+ 7 2,00000- 2 1.55000+ 7 4,50000- 2 209 3 17  888
1,60000+ 7 1,20000- 1 1,70000+ 7 3,20000- 1 1,80000+ 7 6,10000- 1 209 3 17  889
1,85000+ 7 8,10000- 1 1,95000+ 7 1,16000+ 0 2,00000+ 7 1,25000+ 0 209 3 17  890
                                                                  209 3  0  891
8,32090+ 4 2,07185+ 2          0          0          0          0 209 3 22  892
0,       + 0 3,13000+ 6        0          0          1          7 209 3 22  893
         7           2                                            209 3 22  894
1,00000- 5 0,       + 0 1.39000+ 7 0,       + 0 1,40000+ 7 1.00000- 7 209 3 22  895
1,50000+ 7 2,00000- 4 1,60000+ 7 3,00000- 4 1,80000+ 7 1,00000- 3 209 3 22  896
2,00000+ 7 3,00000- 3                                             209 3 22  897
                                                                  209 3  0  898
8,32090+ 4 2,07185+ 2          0          1          0          0 209 3 51  899
0,       + 0-8,96600+ 5        0          0          1         81 209 3 51  900
         81          2                                            209 3 51  901
9,00910+ 5 0,       + 0 1,02000+ 6 5,02600- 2 1,04000+ 6 7,66500- 2 209 3 51  902
1,05000+ 6 8,41900- 2 1,06300+ 6 7,79100- 2 1.07000+ 6 9,29900- 2 209 3 51  903
1,08000+ 6 1,10600- 1 1.08500+ 6 1,28200- 1 1.09000+ 6 1,50800- 1 209 3 51  904
1,10000+ 6 1,14400- 1 1,11000+ 6 9,42400- 2 1,12000+ 6 1,30700- 1 209 3 51  905
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1.12500+ 6 1.18100- 1 1.13000+ 6 1.25700- 1 1.13900+ 6 1.24400- 1 209 3 51   906
1.14700+ 6 1.16900- 1 1.16000+ 6 1.45800- 1 1.16500+ 6 1.81000- 1 209 3 51   907
1.17000+ 6 1.78400- 1 1.17500+ 6 2.07300- 1 1.18000+ 6 1.57100- 1 209 3 51   908
1.18600+ 6 1.39500- 1 1.19000+ 6 1.50800- 1 1.19500+ 6 1.43300- 1 209 3 51   909
1.20000+ 6 1.21900- 1 1.21200+ 6 1.48300- 1 1.22200+ 6 1.64600- 1 209 3 51   910
1.23300+ 6 1.88500- 1 1.23600+ 6 1.82200- 1 1.24300+ 6 1.58300- 1 209 3 51   911
1.25300+ 6 1.54600- 1 1.26200+ 6 1.23100- 1 1.27000+ 6 1.83500- 1 209 3 51   912
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1.31300+ 6 1.38200- 1 1.32600+ 6 1.67100- 1 1.33300+ 6 1.81000- 1 209 3 51   914
1.34000+ 6 2.03600- 1 1.35300+ 6 1.87200- 1 1.36600+ 6 1.92300- 1 209 3 51   915
1.37300+ 6 1.69600- 1 1.38000+ 6 1.40700- 1 1.38600+ 6 1.55600- 1 209 3 51   916
1.39200+ 6 2.02300- 1 1.40000+ 6 2.13600- 1 1.40500+ 6 1.83500- 1 209 3 51   917
1.41000+ 6 1.67100- 1 1.41600+ 6 2.01100- 1 1.42000+ 6 2.01100- 1 209 3 51   918
1.42500+ 6 1.65900- 1 1.43000+ 6 1.63400- 1 1.44000+ 6 1.63400- 1 209 3 51   919
1.44500+ 6 1.68400- 1 1.45000+ 6 1.99800- 1 1.46000+ 6 1.86000- 1 209 3 51   920
1.46600+ 6 2.16100- 1 1.47000+ 6 2.33700- 1 1.47500+ 6 2.35000- 1 209 3 51   921
1.48000+ 6 2.08600- 1 1.48500+ 6 2.23700- 1 1.49000+ 6 1.97300- 1 209 3 51   922
1.50000+ 6 1.88500- 1 1.60000+ 6 2.50000- 1 1.75000+ 6 3.10000- 1 209 3 51   923
2.00000+ 6 3.65000- 1 2.25000+ 6 4.45000- 1 2.50000+ 6 4.90000- 1 209 3 51   924
2.70000+ 6 5.10000- 1 2.85000+ 6 5.10000- 1 3.00000+ 6 5.05000- 1 209 3 51   925
3.25000+ 6 4.55000- 1 3.75000+ 6 3.25000- 1 4.00000+ 6 2.80000- 1 209 3 51   926
5.00000+ 6 1.55000- 1 6.00000+ 6 8.00000- 2 7.00000+ 6 5.00000- 2 209 3 51   927
8.00000+ 6 3.80000- 2 1.00000+ 7 0.      + 0 2.00000+ 7 0.      + 0 209 3 51   928
                                                                    209 3  0   929
8.32090+ 4 2.07185+ 2          0          2          0          0 209 3 52   930
0.      + 0-1.60850+ 6         0          0          1         18 209 3 52   931
        18         2                                               209 3 52   932
1.61620+ 6 0.      + 0 1.80000+ 6 1.55000- 1 2.00000+ 6 2.45000- 1 209 3 52   933
2.20000+ 6 3.13000- 1 2.40000+ 6 3.60000- 1 2.60000+ 6 3.85000- 1 209 3 52   934
2.80000+ 6 3.92000- 1 3.00000+ 6 3.80000- 1 3.50000+ 6 3.03000- 1 209 3 52   935
3.75000+ 6 2.60000- 1 4.00000+ 6 2.25000- 1 4.50000+ 6 1.60000- 1 209 3 52   936
5.00000+ 6 1.10000- 1 6.00000+ 6 5.00000- 2 7.00000+ 6 2.50000- 2 209 3 52   937
8.00000+ 6 1.20000- 2 1.00000+ 7 0.      + 0 2.00000+ 7 0.      + 0 209 3 52   938
                                                                    209 3  0   939
8.32090+ 4 2.07185+ 2          0          3          0          0 209 3 53   940
0.      + 0-2.55900+ 6         0          0          1         16 209 3 53   941
        16         2                                               209 3 53   942
2.57130+ 6 0.      + 0 2.70000+ 6 2.30000- 1 2.80000+ 6 3.10000- 1 209 3 53   943
3.00000+ 6 4.10000- 1 3.20000+ 6 4.75000- 1 3.40000+ 6 5.13000- 1 209 3 53   944
3.60000+ 6 5.35000- 1 3.80000+ 6 5.35000- 1 4.00000+ 6 5.10000- 1 209 3 53   945
4.50000+ 6 4.05000- 1 5.00000+ 6 3.12000- 1 6.00000+ 6 1.78000- 1 209 3 53   946
7.00000+ 6 1.00000- 1 8.00000+ 6 4.00000- 2 1.00000+ 7 0.      + 0 209 3 53   947
2.00000+ 7 0.      + 0                                              209 3 53   948
                                                                    209 3  0   949
8.32090+ 4 2.07185+ 2          0          4          0          0 209 3 54   950
0.      + 0-2.74200+ 6         0          0          1         13 209 3 54   951
        13         2                                               209 3 54   952
2.75520+ 6 0.      + 0 2.80000+ 6 3.00000- 2 3.00000+ 6 1.12000- 1 209 3 54   953
3.25000+ 6 1.65000- 1 3.50000+ 6 1.95000- 1 3.75000+ 6 2.07000- 1 209 3 54   954
4.00000+ 6 2.02000- 1 4.50000+ 6 1.81000- 1 5.00000+ 6 1.58000- 1 209 3 54   955
6.00000+ 6 1.02000- 1 8.00000+ 6 3.20000- 2 1.00000+ 7 0.      + 0 209 3 54   956
2.00000+ 7 0.      + 0                                              209 3 54   957
                                                                    209 3  0   958
8.32090+ 4 2.07185+ 2          0          5          0          0 209 3 55   959
0.      + 0-3.00000+ 6         0          0          1         12 209 3 55   960
        12         2                                               209 3 55   961
3.01440+ 6 0.      + 0 3.25000+ 6 1.40000- 1 3.50000+ 6 2.10000- 1 209 3 55   962
3.75000+ 6 2.50000- 1 4.00000+ 6 2.70000- 1 4.25000+ 6 2.75000- 1 209 3 55   963
4.50000+ 6 2.70000- 1 5.00000+ 6 2.45000- 1 6.00000+ 6 1.70000- 1 209 3 55   964
8.00000+ 6 5.00000- 2 1.00000+ 7 0.      + 0 2.00000+ 7 0.      + 0 209 3 55   965
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8,32090+ 4 2,07185+ 2            0            6            0            0 209 3  0  966
0,     + 0-3,12100+ 6            0            0            1           12 209 3 56  967
        12          2                                                      209 3 56  968
3,13600+ 6 0,     + 0 3,25000+ 6 1,30000- 1 3,50000+ 6 3,00000- 1 209 3 56  969
3,75000+ 6 3,65000- 1 4,00000+ 6 4,20000- 1 4,25000+ 6 4,22000- 1 209 3 56  970
4,50000+ 6 4,15000- 1 5,00000+ 6 3,81000- 1 6,00000+ 6 2,70000- 1 209 3 56  971
8,00000+ 6 7,00000- 2 1,00000+ 7 0,     + 0 2,00000+ 7 0,     + 0 209 3 56  972
                                                                       209 3  0  973
8,32090+ 4 2,07185+ 2            0           98            0            0 209 3 91  974
0,     + 0-3,26100+ 6            0            0            1           21 209 3 91  975
        21          2                                                      209 3 91  976
3,27670+ 6 0,     + 0 3,50000+ 6 8,00000- 2 4,00000+ 6 2,80000- 1 209 3 91  977
4,50000+ 6 6,20000- 1 5,00000+ 6 1,04000+ 0 5,50000+ 6 1,34000+ 0 209 3 91  978
6,00000+ 6 1,65000+ 0 7,00000+ 6 2,06000+ 0 7,50000+ 6 2,20000+ 0 209 3 91  979
8,00000+ 6 2,21000+ 0 8,50000+ 6 1,97000+ 0 9,50000+ 6 1,29000+ 0 209 3 91  980
1,00000+ 7 9,90000- 1 1,05000+ 7 8,10000- 1 1,10000+ 7 7,10000- 1 209 3 91  981
1,15000+ 7 6,10000- 1 1,20000+ 7 5,30000- 1 1,30000+ 7 4,20000- 1 209 3 91  982
1,40000+ 7 3,50000- 1 1,50000+ 7 2,90000- 1 2,00000+ 7 2,60000- 1 209 3 91  983
                                                                       209 3  0  984
8,32090+ 4 2,07185+ 2            0            0            0            0 209 3  0  985
0,     + 0 4,60000+ 6            0            0            1           93 209 3102  986
        93          2                                                      209 3102  987
1,00000- 5 1,66000+ 0 2,00000- 5 1,17400+ 0 3,00000- 5 9,58300- 1 209 3102  988
5,00000- 5 7,42300- 1 6,00000- 5 6,77600- 1 7,00000- 5 6,27400- 1 209 3102  989
8,00000- 5 5,86900- 1 1,00000- 4 5,24900- 1 2,00000- 4 3,71200- 1 209 3102  990
3,00000- 4 3,03000- 1 4,00000- 4 2,62400- 1 5,00000- 4 2,34700- 1 209 3102  991
6,00000- 4 2,14300- 1 7,00000- 4 1,98400- 1 8,00000- 4 1,85600- 1 209 3102  992
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4,00000- 3 8,29900- 2 5,00000- 3 7,42300- 2 6,00000- 3 6,77600- 2 209 3102  994
7,00000- 3 6,27400- 2 8,00000- 3 5,86900- 2 1,00000- 2 5,24900- 2 209 3102  995
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8,00000- 2 1,85600- 2 1,00000- 1 1,66000- 2 2,00000- 1 1,17400- 2 209 3102  998
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2,00000+ 4 1,02000- 2 2,40000+ 4 9,80000- 3 2,60000+ 4 8,80000- 3 209 3102 1012
2,80000+ 4 6,80000- 3 3,00000+ 4 6,10000- 3 3,20000+ 4 6,40000- 3 209 3102 1013
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7,00000+ 4 2,60000- 3 1,00000+ 5 2,20000- 3 5,00000+ 5 2,00000- 3 209 3102 1016
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1,00000+ 7 5,00000- 4 1,50000+ 7 1,10000- 3 2,00000+ 7 1,20000- 3 209 3102 1019
,32090+ 4 2,07185+ 2            0            0            0            0 209 3  0 1020
,     + 0 1,30000+ 5            0            0            1           13 209 3103 1021
        13          2                                                      209 3103 1022
,00000- 5 0,     + 0 9,90000+ 6 0,     + 0 1,00000+ 7 1,00000- 7 209 3103 1023
,10000+ 7 1,60000- 4 1,20000+ 7 2,40000- 4 1,30000+ 7 4,90000- 4 209 3103 1024
                                                                       209 3103 1025
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1,70000+ 7 1,46000- 3 1,80000+ 7 1,90000- 3 1,90000+ 7 2,43000- 3 209 3103 1027
2,00000+ 7 2,51000- 3                                             209 3103 1028
                                                                  209 3  0 1029
8,32090+ 4 2,07185+ 2           0           0           0           0 209 3107 1030
0,     + 0 9,63000+ 6           0           0           1           7 209 3107 1031
         7          2                                                 209 3107 1032
1,00000- 5 0,     + 0 1,29000+ 7 0,     + 0 1,30000+ 7 1,00000- 7 209 3107 1033
1,46000+ 7 6,40000- 4 1,70000+ 7 6,00000- 3 1,90000+ 7 1,44000- 2 209 3107 1034
2,00000+ 7 1,58000- 2                                             209 3107 1035
                                                                  209 3  0 1036
8,32090+ 4 2,07185+ 2           0           0           0           0 209 3251 1037
0,     + 0 0,     + 0           0           0           1          40 209 3251 1038
        40          2                                                 209 3251 1039
1,00000- 5 3,21774- 3 2,00000+ 4 3,21774- 3 6,00000+ 4 5,32170- 2 209 3251 1040
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1,20000+ 7 7,01165- 1 1,40000+ 7 7,48043- 1 1,70000+ 7 8,18653- 1 209 3251 1052
2,00000+ 7 8,59688- 1                                             209 3251 1053
                                                                  209 3  0 1054
8,32090+ 4 2,07185+ 2           0           0           0           0 209 3252 1055
0,     + 0 0,     + 0           0           0           1          40 209 3252 1056
        40          2                                                 209 3252 1057
1,00000- 5 9,62223- 3 2,00000+ 4 9,62223- 3 6,00000+ 4 9,13957- 3 209 3252 1058
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8,32090+ 4 2,07185+ 2           0           0           0           0 209 3253 1073
0,     + 0 0,     + 0           0           0           1          40 209 3253 1074
        40          2                                                 209 3253 1075
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2,00000+ 7 3,95136- 3                                             209 3253 1089
                                                                  209 3   0 1090
                                                                  209 0   0 1091
8,32090+ 4 2,07185+ 2          0          2          0          0 209 4   2 1092
0,     + 0 2,07185+ 2          0          2          0          0 209 4   2 1093
0,     + 0 0,     + 0          0          0          1         40 209 4   2 1094
         40          2                                             209 4   2 1095
0,     + 0 1,00000- 5          0          0          1          2 209 4   2 1096
         2           2                                             209 4   2 1097
1,00000+ 0 5,00000- 1 1,00000+ 0 5,00000- 1                       209 4   2 1098
0,     + 0 2,00000+ 4          0          0          1          2 209 4   2 1099
         2           2                                             209 4   2 1100
1,00000+ 0 5,00000- 1 1,00000+ 0 5,00000- 1                       209 4   2 1101
0,     + 0 6,00000+ 4          0          0          1          2 209 4   2 1102
         2           2                                             209 4   2 1103
1,00000+ 0 4,25000- 1 1,00000+ 0 5,75000- 1                       209 4   2 1104
0,     + 0 1,20000+ 5          0          0          1          5 209 4   2 1105
         5           2                                             209 4   2 1106
1,00000+ 0 4,14223- 1-5,00000- 1 4,47286- 1 0,     + 0 4,91578- 1 209 4   2 1107
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0,     + 0 2,40000+ 5          0          0          1          8 209 4   2 1109
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0,     + 0 3,47000+ 5          0          0          1         11 209 4   2 1114
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0,     + 0 6,32000+ 5          0          0          1         12 209 4   2 1132
        12           2                                             209 4   2 1133
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0,     + 0 7,39000+ 5          0          0          1         16 209 4   2 1138
        16           2                                             209 4   2 1139
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0,     + 0 8,44000+ 5          0          0          1         17 209 4   2 1146
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 0,      + 0 9,40000+ 5           0           0           1          23 209 4   2 1154
          23                2                                                    209 4   2 1155
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 9,30000- 1 1,20102+ 0 1,00000+ 0 1,46935+ 0                       209 4   2 1163
 0,      + 0 1,03400+ 6           0           0           1          24 209 4   2 1164
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0,     + 0 0,     + 0          0           0           1           4 209 5 22 2139
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                                                                    209 5  0 2223
8,32090+ 4 2,07165+ 2          0           0           1           0 209 5 91 2224
0,      + 0 0,      + 0          0           1           1           2 209 5 91 2225
         2          2                                               209 5 91 2226
3,27670+ 6 1,00000+ 0 2,00000+ 7 1,00000+ 0                          209 5 91 2227
0,      + 0 0,      + 0          0           0           1          11 209 5 91 2228
         11         2                                               209 5 91 2229
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         3          2                                               209 5 91 2231
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5,80000+ 5 0,      + 0                                             209 5 91 2253
0,      + 0 4,50000+ 6          0           0           1          38 209 5 91 2254
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0,      + 0 6,00000+ 6          0           0           1          45 209 5 91 2269
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                                                                       209 5  0 2381
                                                                       209 0  0 2382
8,32090+ 4 2,07185+ 2           1           0           1           0 20912102 2383
0,      + 0 0,      + 0           0           1           1           4 20912102 2384
          4          2                                                 20912102 2385
1,00000- 5 1,00000+ 0 8,99900+ 5 1,19600+ 0 9,00000+ 5 0,      + 0 20912102 2386
2,00000+ 7 0,00000+ 0                                                  20912102 2387
                                                                       20912  0 2388
                                                                       209 0  0 2389
8,32090+ 4 2,07185+ 2           0           0           1           0 20913  3 2390
0,      + 0 0,      + 0           0           1           1          12 20913  3 2391
         12          2                                                 20913  3 2392
9,00000+ 5 4,83960- 3 1,00000+ 6 1,27670- 1 3,00000+ 6 3,73740+ 0 20913  3 2393
5,00000+ 6 6,15670+ 0 7,00000+ 6 7,45610+ 0 9,00000+ 6 8,64830+ 0 20913  3 2394
1,10000+ 7 7,87850+ 0 1,30000+ 7 7,27740+ 0 1,40000+ 7 6,62220+ 0 20913  3 2395
1,50000+ 7 6,46190+ 0 1,75000+ 7 7,55550+ 0 2,00000+ 7 8,10180+ 0 20913  3 2396
                                                                       20913  0 2397
                                                                       209 0  0 2398
8,32090+ 4 2,07185+ 2           1           0           1           0 20914  3 2399
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                                                                       20914  0 2402
                                                                       209 0  0 2403
8,32090+ 4 2,07185+ 2           0           0           1           0 20915  3 2404
0,      + 0 0,      + 0           0           1           1           2 20915  3 2405
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9,00000+ 5 1,00000+ 0 2,00000+ 7 1,00000+ 0                            20915  3 2407
0,      + 0 0,      + 0           0           0           1          12 20915  3 2408
         12          2                                                 20915  3 2409
0,      + 0 9,00000+ 5           0           0           1          28 20915  3 2410
         28          2                                                 20915  3 2411
1,00000+ 4 0,      + 0 2,09930+ 4 2,27558- 8 4,29800+ 4 4,55345- 8 20915  3 2412
6,49670+ 4 6,72714- 8 1,19930+ 5 1,17287- 7 1,85890+ 5 1,69735- 7 20915  3 2413
2,40860+ 5 2,07699- 7 2,95830+ 5 2,40920- 7 4,16760+ 5 2,99273- 7 20915  3 2414
5,37680+ 5 3,40471- 7 6,69600+ 5 3,69627- 7 8,12520+ 5 3,86553- 7 20915  3 2415
9,66430+ 5 3,91747- 7 1,16430+ 6 3,84140- 7 1,39520+ 6 3,62030- 7 20915  3 2416
2,57150+ 6 1,96259- 7 2,93420+ 6 1,53540- 7 3,30800+ 6 1,17337- 7 20915  3 2417
3,53890+ 6 9,87200- 8 3,76970+ 6 8,27074- 8 4,01160+ 6 6,54344- 8 20915  3 2418
4,27540+ 6 5,54276- 8 4,55030+ 6 4,43204- 8 4,83610+ 6 3,49879- 8 20915  3 2419
5,14390+ 6 2,70176- 8 5,31980+ 6 2,32682- 8 5,48470+ 6 2,02084- 8 20915  3 2420
5,49570+ 6 0,      + 0                                                 20915  3 2421
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2,29160+ 5 2,11803- 6 3,87120+ 5 1,33636- 6 4,38450+ 5 1,18006- 6 20915  3 2428
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          2           2                                                20915102 2609
                                                                       20915102 2610
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          2           2                                                20915102 2612
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          9           2                                                20915102 2614
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          9           2                                                20915102 2619
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                                                                                20915  0 2623
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