Multiplication Methods

A collection of some methods for doing multiplication that have been devised and used in previous times.

Notes on Multiplication Methods ~ 1

All of the methods given here are written methods.
For an additional account of some mechanical methods see under 'Artifacts for Mathematics' (in the *trol* menu) where the material for making, together with instructions for using: Napier's Rods, Genaille's Rods and a Slide Rule, are to be found.

At the back of this unit are some sheets of multiplication tables.
The first is simply eight copies of a basic 1 to 9 multiplication square, which makes it easy to provide everyone with their own personal copy when those facts are needed. Needing to “know their tables” should not be made an issue in this work.

The second, ‘A Book of Multiplication Tables’ is much more complicated to make. First of all it requires some care with the double-sided photocopying needed. Check that the crosses in the middle of the two sheets match (within 2 mm if possible), and also that the 94× table does back the 89× table (and NOT the 65×).
The sheet has then to be folded in half three times. Do not rush this stage. Press the folds down well with some hard object (ruler or pen). The dotted lines are only a guide, the important thing is to match up the edges of the paper each time, and see that the dotted lines are on the **inside** of the fold. The titled front cover should always be on the **outside** of the fold.
A staple through the last fold (the hinged edge) and three cuts along the outer edges with a guillotine will complete the process. It is nowhere near as difficult as it sounds!
An alternative cover for the booklet is provided. This will have to be cut and pasted onto the master copy before the photocopying is done.
All of this would only be worthwhile if the tables might be used in some other work.

These same tables are also available in a straight sheet format if wanted. They can be found in the ‘Division’ unit (in the *trol* menu).

It must be emphasied that there are many more ways of doing multiplication than those given here, though most of them are merely variations on a general theme. The ones suggested in this unit are those considered to offer the most useful insights into the historic development of this particular piece of arithmetic so some might appreciate that

“No, it hasn’t always been like that!”

Exactly how any or all of this material is used will be, as always, a matter for individual teachers to decide and plan for.

It can be surprising to see the lengths to which mathematicians and other professional users of mathematics have gone to over the centuries to simplify the multiplication process. But remember that even so great a mathematician as Leibnitz (1646 to 1716) who invented the calculus said

“It is unworthy of excellent men to lose hours
like slaves in the labour of calculation.”
(A feeling which many of our pupils share!)

Notes on Multiplication Methods ~ 2

Using Doubling and Halving

1. The Ancient Egyptian Method

This is probably the oldest of all the written methods. It is of some interest because of its links with the binary form of a number, and also because of the simplicity of the idea - it needs only an ability to be able to multiply by 2 and add.

However it should also be appreciated that in those days (1000 BC or so) such things were not for 'ordinary folk' who would have had no need of such a skill. It was very much the preserve of professionals such as astrologers, architects and mathematicians.

2. The Russian Peasant Method

This method was more widely used than its name might imply. It was in fact taught and practised throughout Europe for quite some time. It is a less demanding algorithm than the previous one since the numbers to be crossed off are easier to identify. It is interesting to write them side by side and see how they are doing the same thing. The link of course is the binary system underlying both.

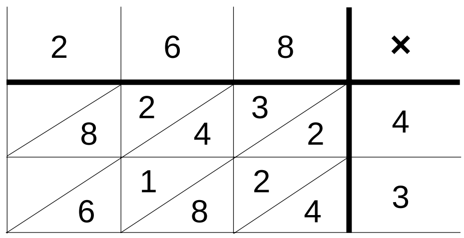
1	268	43	268
2	536	21	536
~~4~~	~~1072~~	~~10~~	~~1072~~
8	2144	5	2144
~~16~~	~~4288~~	~~2~~	~~4288~~
32	8576	1	8576
43	**11524**		**11524**

Using the Gelosia Method

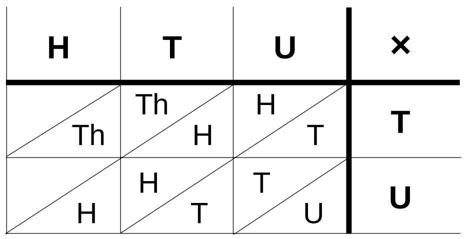
(*Pronounced* jee - **low** - see - uh)

Any analysis or explanation of why this method works is probably best linked to looking at the place values of the different figures involved.

The worked example from the sheet is shown on the right.



The lower diagram replaces each of the the figures in the top diagram with its place value, using the usual notation of H T U, with the addition of Th for thousands. The neat way each place value falls into line along the diagonals makes it very clear why the method works. It also makes it very apparent why zeros must be included in the numbers when necessary.



It is easy to extend the diagram to cover tens of thousands and upwards or, tenths, hundredths, thousandths and so on downwards, and thus show why placing the decimal point works as it does.

This method almost certainly originated in India, as did so much of our arithmetic. From there it spread outwards to China, Persia and the Arab world. It reached Europe through Italy where it first appeared in the 14th century.

The name 'gelosia' was given to it in Italy since the necessary grid resembled the lattices or gratings (= gelosia) which were made in metal and fastened in front of the windows of the houses for security.

It has been claimed that Napier got the idea for his rods from this method. Whether or not he did, the possibility can clearly be seen. In fact, multiplication tables and a knowledge of place value could be dispensed with by using the two methods together. Once the grid has been drawn, a set of Napier's Rods would provide all the needed answers to complete it, and the final addition would be the only arithmetic necessary.

One practical point. Do not slow things up by drawing precisely ruled grids. It is quite sufficient to write down the two numbers (adequately spaced) and sketch the grid around them free-hand.

Notes on Multiplication Methods ~ 3

Using Quarter Squares

The reason why this method works can only be justified by the use of algebra.

It can be shown that

$$ab \equiv \frac{(a+b)^2}{4} - \frac{(a-b)^2}{4}$$

Given a and b are the two numbers to be multiplied together, and the two terms on the right are quarter squares (as defined on the sheet) then the algorithm follows from the above identity. And (provided the requisite tables are available) multiplication has been replaced by one addition and two subtractions without need for any multiplication facts to be known or found.

In passing it is of interest to consider (and prove) why the remainder can be disregarded.

Note that this method is completely accurate in giving all the figures possible in the final answer. Its big limitations are that

(a) a set of tables is needed and,

(b) the size of the numbers it can handle is constrained by the size of the tables (which has to cover the sum of the two numbers being multiplied).

The second limitation is not too bad. The sample sheet included here goes to 600, so it is easy to visualize the smallish book which would be needed to reach 100,000. That means an accuracy of 4 significant figures (or better) which should cover most practical needs. Approximations allow the tables to be used for larger numbers.

The method was used (but how widely is not known) and the necessary tables to enable this were published in the late 1800's.

Using Logarithms

This is a much simplified version of what was once taught in the classrooms of every secondary school. The words *'characteristic'* and *'mantissa'* do not appear, and only numbers greater than 1 are dealt with to avoid that very troublesome negative characteristic.

Also only 3-figure tables are used and the customary difference table does not appear. However, the essentials required to give a glimpse of what was done are there. In modern terms this could be called "Logarithms Lite".

The characteristic which is so necessary to control the place value has been replaced here by the e-notation. This is the notation introduced by the IEEE (= Institute of Electrical and Electronic Engineers) and used in all computer work. Gaining an acquaintance with this notation might be regarded as a valuable by-product of this piece of work.

One of the inadequancies of 3-figure tables is very apparent once the numbers go beyond 5.0 when many of the logarithmic values are repeated. This cannot be avoided without moving on to 4 or 5-figure tables.

Sheet 1 does not require any knowledge of the characteristic as the examples are chosen so as not to go beyond the range of the table. Also there are no ambiguous values for the logarithms.

Sheet 2 introduces the idea of the e-notation.

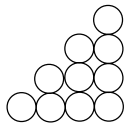
Some help might be needed with the business of using the tables, first in finding the logarithm from the number, and then the much more difficult matter of reversing that process.

Further work could be done with numbers less than 1 and division.

Notes on Multiplication Methods ~ 4

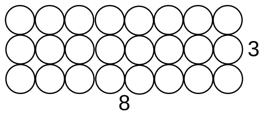
Using Triangle Numbers

This method has the big advantage that it can be easily explained or justified diagrammatically, without any recourse to algebra, except for the generalisation at the end. For this purpose it is better to change the conventionally drawn triangle numbers (as equilateral triangles) into right-angled triangles. The appropriate drawing for T_4 is shown on the right.

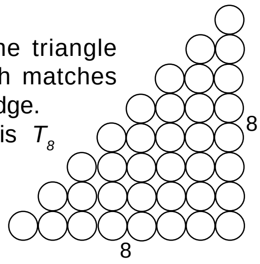


We will do the sum 8 × 3 using five diagrams.

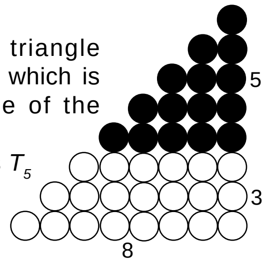
1.
The sum 8 × 3 requires the number of objects making this rectangle to be counted.



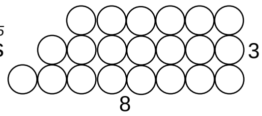
2.
First make the triangle number which matches the longest edge.
In this case it is T_8



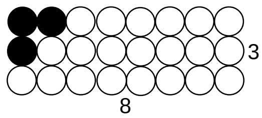
3.
Cut away the triangle *(shown in black)* which is above the size of the rectangle.
In this case it is T_5



4.
Triangle removed was T_5 or $T_{(8-3)}$ leaving this incomplete rectangle



5.
Complete the rectangle with smallest possible triangle *(shown in black).*
In this case T_2 or $T_{(3-1)}$



Physically we have shown that

$$8 \times 3 = 36 - 15 + 3$$
$$= T_8 - T_5 + T_2$$
$$= T_8 - T_{(8-3)} + T_{(3-1)}$$

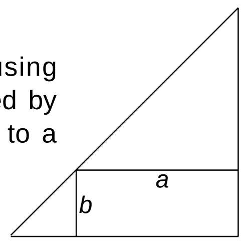
Which generalises to

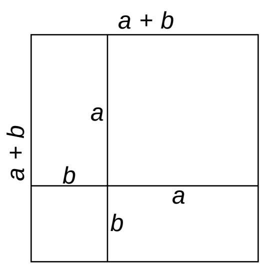
$$a \times b = T_a - T_{(a-b)} + T_{(b-1)}$$

Rearranged for the algorithm

$$a \times b = T_a + T_{(b-1)} - T_{(a-b)}$$

Another approach to using triangle numbers is implied by this diagram which leads to a different algorithm.





A similar thing can be done using square numbers (or indeed any polygon numbers).
The identity

$$(a + b)^2 = a^2 + b^2 + 2ab$$

which is illustrated on the left can be rearranged to give ab =
and the required algorithm can be produced from that.
A table giving the values of square numbers S_n is available.

Though interesting, and illuminating, to see how these work they were never more than mathematical curiosities, and (unlike the method of quarter squares) there appears to be no evidence that they were ever used in any practical way. One advantage this method does have over quarter squares is that, in this case the largest number in the tables is also the largest possible multiplier.

Multiplication using Doubling and Halving

1. The Ancient Egyptian Method

Consider the sum 268 × 43
First write out two columns of numbers side by side.
The left-hand column starts with **1**.
The right-hand colum starts with the **larger** of the two numbers being multiplied (268).
The columns are formed by **doubling** each of the previous numbers, **stopping** only when the figure in the left-hand column would become **bigger** than (or equal to) the other number being multiplied (43).
The final result would be as shown on the right.
Take care to keep the columns lined up, both vertically and horizontally.

1	**268**
2	536
4	1072
8	2144
16	4288
32	8576

The next stage is to look at the left-hand column and find the numbers which are needed to add up to the value of the smaller multiplier (43).
In this case the necessary set is 1 + 2 + 8 + 32 = 43
(Note that the bottom number should always be needed, and it is best working backwards from that, subtracting as you go.)
Cross out all the numbers in that column not needed **together with** the numbers in the right-hand column which are on the same level.
Finally, add up the numbers in the right-hand column which have not been crossed out.
That is the answer. The completed sum is shown on the right.
So, **268 × 43 = 11524**

1	268
2	536
~~4~~	~~1072~~
8	2144
~~16~~	~~4288~~
32	8576
43	**11524**

Try these, using the Ancient Egyptian method.

26 × 314 41 × 61 71 × 213 55 × 97 32 × 104 251 × 21

2. The Russian Peasant Method

Consider the sum 268 × 43
First write out two columns of numbers side by side.
Each column starts with one of the two numbers to be multiplied. (43 and 268)
Make one column by **doubling** each of the previous numbers.
Make the other column by **halving** each of the previous numbers, ignoring any remainders, and **stopping** at **1**.
*(It is best to make the **halving** column under the **smaller** of the two multipliers)*
The final result would be as shown on the right.
Take care to keep the columns lined up, both vertically and horizontally.

43	**268**
21	536
10	1072
5	2144
2	4288
1	8576

The next stage is to look at the **halving** column and find all the **even** numbers.
In this case they are 10 and 2
Cross out the even numbers in that column **together with** the numbers in the right-hand column which are on the same level.
Finally, add up the numbers in the right-hand column which have not been crossed out.
That is the answer. The completed sum is shown on the right.
So, **268 × 43 = 11524**

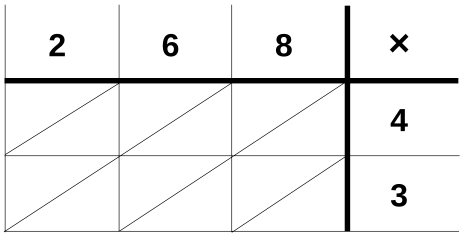
43	268
21	536
~~10~~	~~1072~~
5	2144
~~2~~	~~4288~~
1	8576
	11524

Try these, using the Russian Peasant method.

24 × 316 30 × 54 63 × 81 128 × 231 71 × 483 327 × 45

Multiplication using the Gelosia Method

Consider the sum 268 × 43 (That is 3 digits × 2 digits)
Sketch a grid like that on the right, and place the two numbers as shown.



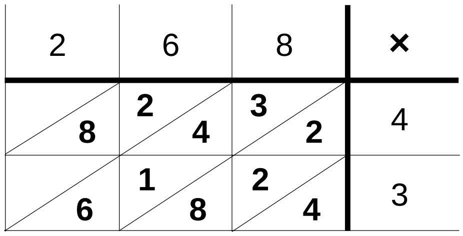
Next, do the six single-digit multiplications formed by matching the separate numbers across the top with those on the right-hand edge.

In this case, it means doing the six sums shown on the right

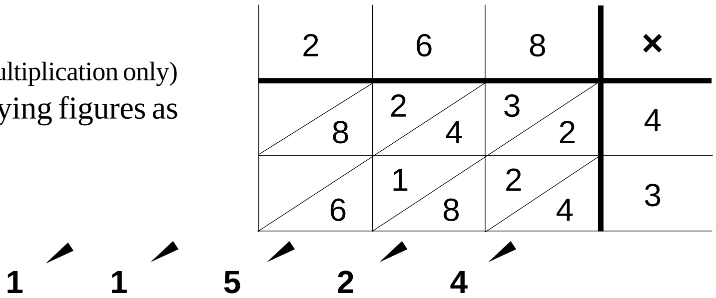
2 × 4	6 × 4	8 × 4
2 × 3	6 × 3	8 × 3

and the answers to those multiplications are written in the appropriate boxes of the grid for each number-pair.

No answer can have more than two digits. (tens and units)
Any **tens** (L.H. digit) are written **above** the diagonal line,
The **units** (R.H. digit) are written **below** the diagonal line. (It may be zero)
The completed grid should look like that on the right.



The final answer is produced by adding (the results of the multiplication only) along the diagonals, working from right to left, and carrying figures as necessary, and this is shown on the right.

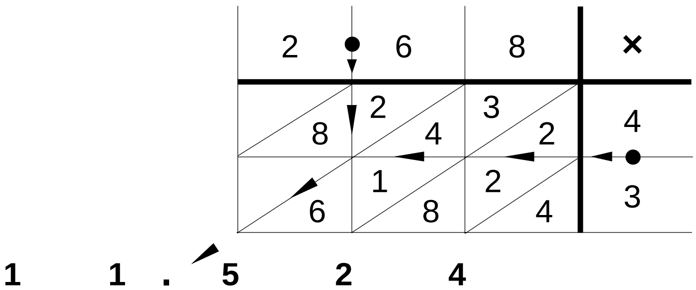


So, **268 × 43 = 11524**

Try these, using the gelosia method.

386 × 24   758 × 34   76 × 89   402 × 31   999 × 78   478 × 219

Decimal points are dealt with very simply.
Consider the sum 2.68 × 4.3
Work exactly as before with 268 × 43 and then put the two decimal points in those numbers on the vertical and horizontal lines respectively.
Follow those two lines into the grid until they meet, and then, moving down the diagonal line from there, put the decimal point in the answer.
All of this can be seen in the diagram on the right by following the arrows.



So, **2.68 × 4.3 = 11.524**

Try these, using the gelosia method.
First, by using the grids already created in the previous work, write down the answers to these:

3.86 × 24   75.8 × 3.4   7.6 × 89   40.2 × 31   9.99 × 78   47.8 × 2.19

and then do these:

12.3 × 4.6   7.32 × 18   508 × 3.7   0.617 × 3.8   0.059 × 23   0.074 × 0.038

Multiplication using Quarter Squares

The sheet headed **Values of Quarter Squares Q_n** is needed

The quarter square of a number, is the value of that number multiplied by itself and then divided by 4, ignoring any remainder (if there is one).

Examples

The quarter square of 2 is: 2 × 2 ÷ 4 = 4 ÷ 4 = 1
3 is: 3 × 3 ÷ 4 = 9 ÷ 4 = 2 rem 1 which becomes 2
5 is: 5 × 5 ÷ 4 = 25 ÷ 4 = 6 rem 1 which becomes 6
and so on.

Quarter squares would be of little use for the purpose of simplifying multiplication if they had to be worked out each time they were needed and so a table is used to look up their values.
Look at the sheet: Values of Quarter Squares and confirm that the quarter square of 413 is 42 642 (or 42,642 if preferred).

Having such a table enables us to change a multiplication sum into a much simpler matter of addition and subtraction.

Consider the sum 268 × 43
First add them: 268 + 43 = 311 and find the quarter square of that = 24 180
Then subtract them: 268 – 43 = 255 and find the quarter square of that = 12 656
Finally, subtract the quarter squares to get the final answer = 11 524
and 268 × 43 = **11 524**

It could be set out something like this:

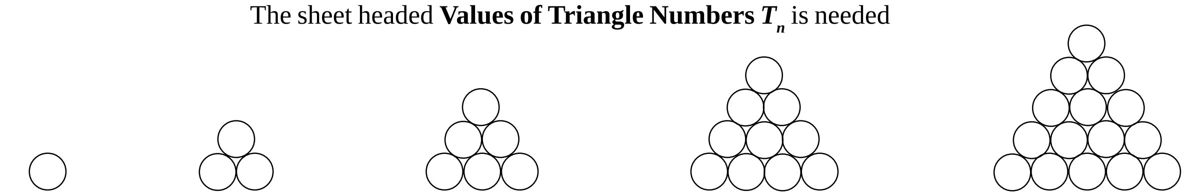
	268	
×	43	Q_n
+	311	24 180
–	225	12 656 –
		11 524

Try these, using the quarter squares method.

245 × 32   286 × 45   364 × 123   74 × 36   376 × 21   443 × 157

Multiplication using Triangle Numbers

The sheet headed **Values of Triangle Numbers T_n** is needed



T_1 = **1** T_2 = **3** T_3 = **6** T_4 = **10** T_5 = **15**

Triangle numbers are those that can be made in the way shown above where the first five are drawn.
The actual value of any triangle number can be worked out using

$$T_n = n \times (n + 1) \div 2$$

Example
The value of the triangle number for 8 is: 8 × (8 + 1) ÷ 2 = 8 × 9 ÷ 2 = 36

Triangle Numbers would be of little use for the purpose of simplifying multiplication if they had to be worked out each time they were needed and so a table is used to look up their values.
Look at the sheet: Values of Triangle Numbers and confirm that the triangle number corresponding to 413 is 85 491 (or 85,491 if preferred).

Having such a table enables us to change a multiplication sum into a much simpler matter of addition and subtraction.

Consider the sum 268 × 43

Find the triangle number corresponding to the larger (268)	= 36 046
Subtract 1 from the smaller (43 - 1 = 42) and find its triangle number	= 12 656
Add those two triangle numbers	= 36 949
Subtract the two multiplying numbers (268 - 43 = 225) and find the triangle number for that	= 25 425
Subtract that from the previous result to get the final answer	= 11 524

and 268 × 43 = **11 524**

It could be set out something like this:

	T_n	
268	36 046	
43 – 1 = 42	903	+
	36 949	
– 225	25 425	–
	11 524	

Try these, using the triangle numbers method.

213 × 87   367 × 42   179 × 53   485 × 132   593 × 341   259 × 34

Multiplication using Logarithms ~ 1

The sheet headed **Values of Logarithms L_n** is needed

We will not concern ourselves here with what logarithms are, but only how to use them for multiplication. (They can also be used for division.)

First of all, every number has a logarithm associated with it and that association is unique. In other words, given any number it has only one logarithm and, just as importantly, given any logarithm it can only represent one number.

We will start with a very simple example of how we use logarithms.
Consider the sum 2 × 4
To use the table of logarithms we need to see this as 2.00 × 4.00

From the table we can find that 2.00 has a logarithm of	0.301
and that 4.00 has a logarithm of	0.602
Then we ADD the two logarithms to get	0.903

That is the answer to the sum but, it is a logarithm, so we need to find what number it represents.
Using the table (in reverse) shows that 0.903 is the logarithm of 8.00
So 2.00 × 4.00 = 8.00 (Hardly a surprise, but good to see it works.)

Now consider the much harder sum 2.15 × 3.62
We find their logarithms are 0.332 and 0.559 and these add to 0.891
The logarithm 0.891 matches the number 7.78

So 2.15 × 3.62 = 7.78

It could be set out something like this:

	N	L_n	
	2.15	0.332	
×	3.62	0.559	+
	7.78	0.891	

The full answer should have been 7.783 but it must be recognised that the very simplified table we are using is not capable of that sort of accuracy. We wish only to establish how logarithms are used and, for most practical purposes, this accuracy is adequate.

Try doing these, using logarithms

2 × 3   3 × 3   1.92 × 3.36   5.18 × 1.45   3.55 × 1.29   4.07 × 1.93

Multiplication using Logarithms ~ 2

Notice that the table of logarithms covers only numbers from 1.00 to 9.99 and that is true for all tables of logarithms. For greater accuracy it might be 1.0000 to 9.9999 but the principle is the same. So now we consider how to adapt all numbers to fit the tables and see how powerful this tool is in handling all multplications.

For this we need to be familiar with a particular way of writing numbers which first sets them down as a value between 1 and 10 and then puts enough × 10's after them so they would be restored to their correct value.

For example 43 can be written as 4.3 × 10
268 can be written as 2.68 × 10 × 10

There is a special notation used for this which writes the above numbers as

4.3e1 and 2.68e2 respectively

where the number after the 'e' shows how many 10's are needed.

Or it can be thought of as the amount that the decimal point must be moved to the ***right*** *to restore the correct value.*

Now when we look up the logarithms of 4.3 and 2.68 we replace the 0 on the front with the e-number (if there is one).
So that the logarithm of 43 (log 4.3 = 0.633 with e = 1) becomes **1.**633
and the logarithm of 268 (log 2.68 = 0.428 with e = 2) becomes **2.**428
Then we add the two logarithms to get **4.**061
Remembering this stands for a logarithm of 0.061 with e = **4**
We next find 0.061 in the logarithm tables and see that it corresponds to the number 1.15
With e = **4** we must multiply by 10, 4 times

1.15 × 10 × 10 × 10 × 10 = 11500
More accurately 43 × 268 = 11524
But we can write 43 × 268 = 11500 *(to 3 significant figures)*

It could be set out something like this:

	N	L_n	
	43	1.633	
×	268	2.428	+
	1.15	4.061	

Try doing these, using logarithms

37 × 26 45 × 78 274 × 63 517 × 842 65.4 × 173 3610 × 904

Values of Quarter Squares Q_n for n = 1 to 600

n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n	n	Q_n
1	0	51	650	101	2550	151	5700	201	10 100	251	15 750	301	22 650	351	30 800	401	40 200	451	50 850	501	62 750	551	75 900
2	1	52	676	102	2601	152	5776	202	10 201	252	15 876	302	22 801	352	30 976	402	40 401	452	51 076	502	63 001	552	76 176
3	2	53	702	103	2652	153	5852	203	10 302	253	16 002	303	22 952	353	31 152	403	40 602	453	51 302	503	63 252	553	76 452
4	4	54	729	104	2704	154	5929	204	10 404	254	16 129	304	23 104	354	31 329	404	40 804	454	51 529	504	63 504	554	76 729
5	6	55	756	105	2756	155	6006	205	10 506	255	16 256	305	23 256	355	31 506	405	41 006	455	51 756	505	63 756	555	77 006
6	9	56	784	106	2809	156	6084	206	10 609	256	16 384	306	23 409	356	31 684	406	41 209	456	51 984	506	64 009	556	77 284
7	12	57	812	107	2862	157	6162	207	10 712	257	16 512	307	23 562	357	31 862	407	41 412	457	52 212	507	64 262	557	77 562
8	16	58	841	108	2916	158	6241	208	10 816	258	16 641	308	23 716	358	32 041	408	41 616	458	52 441	508	64 516	558	77 841
9	20	59	870	109	2970	159	6320	209	10 920	259	16 770	309	23 870	359	32 220	409	41 820	459	52 670	509	64 770	559	78 120
10	25	60	900	110	3025	160	6400	210	11 025	260	16 900	310	24 025	360	32 400	410	42 025	460	52 900	510	65 025	560	78 400
11	30	61	930	111	3080	161	6480	211	11 130	261	17 030	311	24 180	361	32 580	411	42 230	461	53 130	511	65 280	561	78 680
12	36	62	961	112	3136	162	6561	212	11 236	262	17 161	312	24 336	362	32 761	412	42 436	462	53 361	512	65 536	562	78 961
13	42	63	992	113	3192	163	6642	213	11 342	263	17 292	313	24 492	363	32 942	413	42 642	463	53 592	513	65 792	563	79 242
14	49	64	1024	114	3249	164	6724	214	11 449	264	17 424	314	24 649	364	33 124	414	42 849	464	53 824	514	66 049	564	79 524
15	56	65	1056	115	3306	165	6806	215	11 556	265	17 556	315	24 806	365	33 306	415	43 056	465	54 056	515	66 306	565	79 806
16	64	66	1089	116	3364	166	6889	216	11 664	266	17 689	316	24 964	366	33 489	416	43 264	466	54 289	516	66 564	566	80 089
17	72	67	1122	117	3422	167	6972	217	11 772	267	17 822	317	25 122	367	33 672	417	43 472	467	54 522	517	66 822	567	80 372
18	81	68	1156	118	3481	168	7056	218	11 881	268	17 956	318	25 281	368	33 856	418	43 681	468	54 756	518	67 081	568	80 656
19	90	69	1190	119	3540	169	7140	219	11 990	269	18 090	319	25 440	369	34 040	419	43 890	469	54 990	519	67 340	569	80 940
20	100	70	1225	120	3600	170	7225	220	12 100	270	18 225	320	25 600	370	34 225	420	44 100	470	55 225	520	67 600	570	81 225
21	110	71	1260	121	3660	171	7310	221	12 210	271	18 360	321	25 760	371	34 410	421	44 310	471	55 460	521	67 860	571	81 510
22	121	72	1296	122	3721	172	7396	222	12 321	272	18 496	322	25 921	372	34 596	422	44 521	472	55 696	522	68 121	572	81 796
23	132	73	1332	123	3782	173	7482	223	12 432	273	18 632	323	26 082	373	34 782	423	44 732	473	55 932	523	68 382	573	82 082
24	144	74	1369	124	3844	174	7569	224	12 544	274	18 769	324	26 244	374	34 969	424	44 944	474	56 169	524	68 644	574	82 369
25	156	75	1406	125	3906	175	7656	225	12 656	275	18 906	325	26 406	375	35 156	425	45 156	475	56 406	525	68 906	575	82 656
26	169	76	1444	126	3969	176	7744	226	12 769	276	19 044	326	26 569	376	35 344	426	45 369	476	56 644	526	69 169	576	82 944
27	182	77	1482	127	4032	177	7832	227	12 882	277	19 182	327	26 732	377	35 532	427	45 582	477	56 882	527	69 432	577	83 232
28	196	78	1521	128	4096	178	7921	228	12 996	278	19 321	328	26 896	378	35 721	428	45 796	478	57 121	528	69 696	578	83 521
29	210	79	1560	129	4160	179	8010	229	13 110	279	19 460	329	27 060	379	35 910	429	46 010	479	57 360	529	69 960	579	83 810
30	225	80	1600	130	4225	180	8100	230	13 225	280	19 600	330	27 225	380	36 100	430	46 225	480	57 600	530	70 225	580	84 100
31	240	81	1640	131	4290	181	8190	231	13 340	281	19 740	331	27 390	381	36 290	431	46 440	481	57 840	531	70 490	581	84 390
32	256	82	1681	132	4356	182	8281	232	13 456	282	19 881	332	27 556	382	36 481	432	46 656	482	58 081	532	70 756	582	84 681
33	272	83	1722	133	4422	183	8372	233	13 572	283	20 022	333	27 722	383	36 672	433	46 872	483	58 322	533	71 022	583	84 972
34	289	84	1764	134	4489	184	8464	234	13 689	284	20 164	334	27 889	384	36 864	434	47 089	484	58 564	534	71 289	584	85 264
35	306	85	1806	135	4556	185	8556	235	13 806	285	20 306	335	28 056	385	37 056	435	47 306	485	58 806	535	71 556	585	85 556
36	324	86	1849	136	4624	186	8649	236	13 924	286	20 449	336	28 224	386	37 249	436	47 524	486	59 049	536	71 824	586	85 849
37	342	87	1892	137	4692	187	8742	237	14 042	287	20 592	337	28 392	387	37 442	437	47 742	487	59 292	537	72 092	587	86 142
38	361	88	1936	138	4761	188	8836	238	14 161	288	20 736	338	28 561	388	37 636	438	47 961	488	59 536	538	72 361	588	86 436
39	380	89	1980	139	4830	189	8930	239	14 280	289	20 880	339	28 730	389	37 830	439	48 180	489	59 780	539	72 630	589	86 730
40	400	90	2025	140	4900	190	9025	240	14 400	290	21 025	340	28 900	390	38 025	440	48 400	490	60 025	540	72 900	590	87 025
41	420	91	2070	141	4970	191	9120	241	14 520	291	21 170	341	29 070	391	38 220	441	48 620	491	60 270	541	73 170	591	87 320
42	441	92	2116	142	5041	192	9216	242	14 641	292	21 316	342	29 241	392	38 416	442	48 841	492	60 516	542	73 441	592	87 616
43	462	93	2162	143	5112	193	9312	243	14 762	293	21 462	343	29 412	393	38 612	443	49 062	493	60 762	543	73 712	593	87 912
44	484	94	2209	144	5184	194	9409	244	14 884	294	21 609	344	29 584	394	38 809	444	49 284	494	61 009	544	73 984	594	88 209
45	506	95	2256	145	5256	195	9506	245	15 006	295	21 756	345	29 756	395	39 006	445	49 506	495	61 256	545	74 256	595	88 506
46	529	96	2304	146	5329	196	9604	246	15 129	296	21 904	346	29 929	396	39 204	446	49 729	496	61 504	546	74 529	596	88 804
47	552	97	2352	147	5402	197	9702	247	15 252	297	22 052	347	30 102	397	39 402	447	49 952	497	61 752	547	74 802	597	89 102
48	576	98	2401	148	5476	198	9801	248	15 376	298	22 201	348	30 276	398	39 601	448	50 176	498	62 001	548	75 076	598	89 401
49	600	99	2450	149	5550	199	9900	249	15 500	299	22 350	349	30 450	399	39 800	449	50 400	499	62 250	549	75 350	599	89 700
50	625	100	2500	150	5625	200	10 000	250	15 625	300	22 500	350	30 625	400	40 000	450	50 625	500	62 500	550	75 625	600	90 000

Values of Triangle Numbers T_n for n = 1 to 600

n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n	n	T_n
1	1	51	1326	101	5151	151	11 476	201	20 301	251	31 626	301	45 451	351	61 776	401	80 601	451	101 926	501	125 751	551	152 076
2	3	52	1378	102	5253	152	11 628	202	20 503	252	31 878	302	45 753	352	62 128	402	81 003	452	102 378	502	126 253	552	152 628
3	6	53	1431	103	5356	153	11 781	203	20 706	253	32 131	303	46 056	353	62 481	403	81 406	453	102 831	503	126 756	553	153 181
4	10	54	1485	104	5460	154	11 935	204	20 910	254	32 385	304	46 360	354	62 835	404	81 810	454	103 285	504	127 260	554	153 735
5	15	55	1540	105	5565	155	12 090	205	21 115	255	32 640	305	46 665	355	63 190	405	82 215	455	103 740	505	127 765	555	154 290
6	21	56	1596	106	5671	156	12 246	206	21 321	256	32 896	306	46 971	356	63 546	406	82 621	456	104 196	506	128 271	556	154 846
7	28	57	1653	107	5778	157	12 403	207	21 528	257	33 153	307	47 278	357	63 903	407	83 028	457	104 653	507	128 778	557	155 403
8	36	58	1711	108	5886	158	12 561	208	21 736	258	33 411	308	47 586	358	64 261	408	83 436	458	105 111	508	129 286	558	155 961
9	45	59	1770	109	5995	159	12 720	209	21 945	259	33 670	309	47 895	359	64 620	409	83 845	459	105 570	509	129 795	559	156 520
10	55	60	1830	110	6105	160	12 880	210	22 155	260	33 930	310	48 205	360	64 980	410	84 255	460	106 030	510	130 305	560	157 080
11	66	61	1891	111	6216	161	13 041	211	22 366	261	34 191	311	48 516	361	65 341	411	84 666	461	106 491	511	130 816	561	157 641
12	78	62	1953	112	6328	162	13 203	212	22 578	262	34 453	312	48 828	362	65 703	412	85 078	462	106 953	512	131 328	562	158 203
13	91	63	2016	113	6441	163	13 366	213	22 791	263	34 716	313	49 141	363	66 066	413	85 491	463	107 416	513	131 841	563	158 766
14	105	64	2080	114	6555	164	13 530	214	23 005	264	34 980	314	49 455	364	66 430	414	85 905	464	107 880	514	132 355	564	159 330
15	120	65	2145	115	6670	165	13 695	215	23 220	265	35 245	315	49 770	365	66 795	415	86 320	465	108 345	515	132 870	565	159 895
16	136	66	2211	116	6786	166	13 861	216	23 436	266	35 511	316	50 086	366	67 161	416	86 736	466	108 811	516	133 386	566	160 461
17	153	67	2278	117	6903	167	14 028	217	23 653	267	35 778	317	50 403	367	67 528	417	87 153	467	109 278	517	133 903	567	161 028
18	171	68	2346	118	7021	168	14 196	218	23 871	268	36 046	318	50 721	368	67 896	418	87 571	468	109 746	518	134 421	568	161 596
19	190	69	2415	119	7140	169	14 365	219	24 090	269	36 315	319	51 040	369	68 265	419	87 990	469	110 215	519	134 940	569	162 165
20	210	70	2485	120	7260	170	14 535	220	24 310	270	36 585	320	51 360	370	68 635	420	88 410	470	110 685	520	135 460	570	162 735
21	231	71	2556	121	7381	171	14 706	221	24 531	271	36 856	321	51 681	371	69 006	421	88 831	471	111 156	521	135 981	571	163 306
22	253	72	2628	122	7503	172	14 878	222	24 753	272	37 128	322	52 003	372	69 378	422	89 253	472	111 628	522	136 503	572	163 878
23	276	73	2701	123	7626	173	15 051	223	24 976	273	37 401	323	52 326	373	69 751	423	89 676	473	112 101	523	137 026	573	164 451
24	300	74	2775	124	7750	174	15 225	224	25 200	274	37 675	324	52 650	374	70 125	424	90 100	474	112 575	524	137 550	574	165 025
25	325	75	2850	125	7875	175	15 400	225	25 425	275	37 950	325	52 975	375	70 500	425	90 525	475	113 050	525	138 075	575	165 600
26	351	76	2926	126	8001	176	15 576	226	25 651	276	38 226	326	53 301	376	70 876	426	90 951	476	113 526	526	138 601	576	166 176
27	378	77	3003	127	8128	177	15 753	227	25 878	277	38 503	327	53 628	377	71 253	427	91 378	477	114 003	527	139 128	577	166 753
28	406	78	3081	128	8256	178	15 931	228	26 106	278	38 781	328	53 956	378	71 631	428	91 806	478	114 481	528	139 656	578	167 331
29	435	79	3160	129	8385	179	16 110	229	26 335	279	39 060	329	54 285	379	72 010	429	92 235	479	114 960	529	140 185	579	167 910
30	465	80	3240	130	8515	180	16 290	230	26 565	280	39 340	330	54 615	380	72 390	430	92 665	480	115 440	530	140 715	580	168 490
31	496	81	3321	131	8646	181	16 471	231	26 796	281	39 621	331	54 946	381	72 771	431	93 096	481	115 921	531	141 246	581	169 071
32	528	82	3403	132	8778	182	16 653	232	27 028	282	39 903	332	55 278	382	73 153	432	93 528	482	116 403	532	141 778	582	169 653
33	561	83	3486	133	8911	183	16 836	233	27 261	283	40 186	333	55 611	383	73 536	433	93 961	483	116 886	533	142 311	583	170 236
34	595	84	3570	134	9045	184	17 020	234	27 495	284	40 470	334	55 945	384	73 920	434	94 395	484	117 370	534	142 845	584	170 820
35	630	85	3655	135	9180	185	17 205	235	27 730	285	40 755	335	56 280	385	74 305	435	94 830	485	117 855	535	143 380	585	171 405
36	666	86	3741	136	9316	186	17 391	236	27 966	286	41 041	336	56 616	386	74 691	436	95 266	486	118 341	536	143 916	586	171 991
37	703	87	3828	137	9453	187	17 578	237	28 203	287	41 328	337	56 953	387	75 078	437	95 703	487	118 828	537	144 453	587	172 578
38	741	88	3916	138	9591	188	17 766	238	28 441	288	41 616	338	57 291	388	75 466	438	96 141	488	119 316	538	144 991	588	173 166
39	780	89	4005	139	9730	189	17 955	239	28 680	289	41 905	339	57 630	389	75 855	439	96 580	489	119 805	539	145 530	589	173 755
40	820	90	4095	140	9870	190	18 145	240	28 920	290	42 195	340	57 970	390	76 245	440	97 020	490	120 295	540	146 070	590	174 345
41	861	91	4186	141	10 011	191	18 336	241	29 161	291	42 486	341	58 311	391	76 636	441	97 461	491	120 786	541	146 611	591	174 936
42	903	92	4278	142	10 153	192	18 528	242	29 403	292	42 778	342	58 653	392	77 028	442	97 903	492	121 278	542	147 153	592	175 528
43	946	93	4371	143	10 296	193	18 721	243	29 646	293	43 071	343	58 996	393	77 421	443	98 346	493	121 771	543	147 696	593	176 121
44	990	94	4465	144	10 440	194	18 915	244	29 890	294	43 365	344	59 340	394	77 815	444	98 790	494	122 265	544	148 240	594	176 715
45	1035	95	4560	145	10 585	195	19 110	245	30 135	295	43 660	345	59 685	395	78 210	445	99 235	495	122 760	545	148 785	595	177 310
46	1081	96	4656	146	10 731	196	19 306	246	30 381	296	43 956	346	60 031	396	78 606	446	99 681	496	123 256	546	149 331	596	177 906
47	1128	97	4753	147	10 878	197	19 503	247	30 628	297	44 253	347	60 378	397	79 003	447	100 128	497	123 753	547	149 878	597	178 503
48	1176	98	4851	148	11 026	198	19 701	248	30 876	298	44 551	348	60 726	398	79 401	448	100 576	498	124 251	548	150 426	598	179 101
49	1225	99	4950	149	11 175	199	19 900	249	31 125	299	44 850	349	61 075	399	79 800	449	101 025	499	124 750	549	150 975	599	179 700
50	1275	100	5050	150	11 325	200	20 100	250	31 375	300	45 150	350	61 425	400	80 200	450	101 475	500	125 250	550	151 525	600	180 300

Values of Square Numbers S_n for n = 1 to 600

n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n	n	S_n
1	1	51	2601	101	10 201	151	22 801	201	40 401	251	63 001	301	90 601	351	123 201	401	160 801	451	203 401	501	251 001	551	303 601
2	4	52	2704	102	10 404	152	23 104	202	40 804	252	63 504	302	91 204	352	123 904	402	161 604	452	204 304	502	252 004	552	304 704
3	9	53	2809	103	10 609	153	23 409	203	41 209	253	64 009	303	91 809	353	124 609	403	162 409	453	205 209	503	253 009	553	305 809
4	16	54	2916	104	10 816	154	23 716	204	41 616	254	64 516	304	92 416	354	125 316	404	163 216	454	206 116	504	254 016	554	306 916
5	25	55	3025	105	11 025	155	24 025	205	42 025	255	65 025	305	93 025	355	126 025	405	164 025	455	207 025	505	255 025	555	308 025
6	36	56	3136	106	11 236	156	24 336	206	42 436	256	65 536	306	93 636	356	126 736	406	164 836	456	207 936	506	256 036	556	309 136
7	49	57	3249	107	11 449	157	24 649	207	42 849	257	66 049	307	94 249	357	127 449	407	165 649	457	208 849	507	257 049	557	310 249
8	64	58	3364	108	11 664	158	24 964	208	43 264	258	66 564	308	94 864	358	128 164	408	166 464	458	209 764	508	258 064	558	311 364
9	81	59	3481	109	11 881	159	25 281	209	43 681	259	67 081	309	95 481	359	128 881	409	167 281	459	210 681	509	259 081	559	312 481
10	100	60	3600	110	12 100	160	25 600	210	44 100	260	67 600	310	96 100	360	129 600	410	168 100	460	211 600	510	260 100	560	313 600
11	121	61	3721	111	12 321	161	25 921	211	44 521	261	68 121	311	96 721	361	130 321	411	168 921	461	212 521	511	261 121	561	314 721
12	144	62	3844	112	12 544	162	26 244	212	44 944	262	68 644	312	97 344	362	131 044	412	169 744	462	213 444	512	262 144	562	315 844
13	169	63	3969	113	12 769	163	26 569	213	45 369	263	69 169	313	97 969	363	131 769	413	170 569	463	214 369	513	263 169	563	316 969
14	196	64	4096	114	12 996	164	26 896	214	45 796	264	69 696	314	98 596	364	132 496	414	171 396	464	215 296	514	264 196	564	318 096
15	225	65	4225	115	13 225	165	27 225	215	46 225	265	70 225	315	99 225	365	133 225	415	172 225	465	216 225	515	265 225	565	319 225
16	256	66	4356	116	13 456	166	27 556	216	46 656	266	70 756	316	99 856	366	133 956	416	173 056	466	217 156	516	266 256	566	320 356
17	289	67	4489	117	13 689	167	27 889	217	47 089	267	71 289	317	100 489	367	134 689	417	173 889	467	218 089	517	267 289	567	321 489
18	324	68	4624	118	13 924	168	28 224	218	47 524	268	71 824	318	101 124	368	135 424	418	174 724	468	219 024	518	268 324	568	322 624
19	361	69	4761	119	14 161	169	28 561	219	47 961	269	72 361	319	101 761	369	136 161	419	175 561	469	219 961	519	269 361	569	323 761
20	400	70	4900	120	14 400	170	28 900	220	48 400	270	72 900	320	102 400	370	136 900	420	176 400	470	220 900	520	270 400	570	324 900
21	441	71	5041	121	14 641	171	29 241	221	48 841	271	73 441	321	103 041	371	137 641	421	177 241	471	221 841	521	271 441	571	326 041
22	484	72	5184	122	14 884	172	29 584	222	49 284	272	73 984	322	103 684	372	138 384	422	178 084	472	222 784	522	272 484	572	327 184
23	529	73	5329	123	15 129	173	29 929	223	49 729	273	74 529	323	104 329	373	139 129	423	178 929	473	223 729	523	273 529	573	328 329
24	576	74	5476	124	15 376	174	30 276	224	50 176	274	75 076	324	104 976	374	139 876	424	179 776	474	224 676	524	274 576	574	329 476
25	625	75	5625	125	15 625	175	30 625	225	50 625	275	75 625	325	105 625	375	140 625	425	180 625	475	225 625	525	275 625	575	330 625
26	676	76	5776	126	15 876	176	30 976	226	51 076	276	76 176	326	106 276	376	141 376	426	181 476	476	226 576	526	276 676	576	331 776
27	729	77	5929	127	16 129	177	31 329	227	51 529	277	76 729	327	106 929	377	142 129	427	182 329	477	227 529	527	277 729	577	332 929
28	784	78	6084	128	16 384	178	31 684	228	51 984	278	77 284	328	107 584	378	142 884	428	183 184	478	228 484	528	278 784	578	334 084
29	841	79	6241	129	16 641	179	32 041	229	52 441	279	77 841	329	108 241	379	143 641	429	184 041	479	229 441	529	279 841	579	335 241
30	900	80	6400	130	16 900	180	32 400	230	52 900	280	78 400	330	108 900	380	144 400	430	184 900	480	230 400	530	280 900	580	336 400
31	961	81	6561	131	17 161	181	32 761	231	53 361	281	78 961	331	109 561	381	145 161	431	185 761	481	231 361	531	281 961	581	337 561
32	1024	82	6724	132	17 424	182	33 124	232	53 824	282	79 524	332	110 224	382	145 924	432	186 624	482	232 324	532	283 024	582	338 724
33	1089	83	6889	133	17 689	183	33 489	233	54 289	283	80 089	333	110 889	383	146 689	433	187 489	483	233 289	533	284 089	583	339 889
34	1156	84	7056	134	17 956	184	33 856	234	54 756	284	80 656	334	111 556	384	147 456	434	188 356	484	234 256	534	285 156	584	341 056
35	1225	85	7225	135	18 225	185	34 225	235	55 225	285	81 225	335	112 225	385	148 225	435	189 225	485	235 225	535	286 225	585	342 225
36	1296	86	7396	136	18 496	186	34 596	236	55 696	286	81 796	336	112 896	386	148 996	436	190 096	486	236 196	536	287 296	586	343 396
37	1369	87	7569	137	18 769	187	34 969	237	56 169	287	82 369	337	113 569	387	149 769	437	190 969	487	237 169	537	288 369	587	344 569
38	1444	88	7744	138	19 044	188	35 344	238	56 644	288	82 944	338	114 244	388	150 544	438	191 844	488	238 144	538	289 444	588	345 744
39	1521	89	7921	139	19 321	189	35 721	239	57 121	289	83 521	339	114 921	389	151 321	439	192 721	489	239 121	539	290 521	589	346 921
40	1600	90	8100	140	19 600	190	36 100	240	57 600	290	84 100	340	115 600	390	152 100	440	193 600	490	240 100	540	291 600	590	348 100
41	1681	91	8281	141	19 881	191	36 481	241	58 081	291	84 681	341	116 281	391	152 881	441	194 481	491	241 081	541	292 681	591	349 281
42	1764	92	8464	142	20 164	192	36 864	242	58 564	292	85 264	342	116 964	392	153 664	442	195 364	492	242 064	542	293 764	592	350 464
43	1849	93	8649	143	20 449	193	37 249	243	59 049	293	85 849	343	117 649	393	154 449	443	196 249	493	243 049	543	294 849	593	351 649
44	1936	94	8836	144	20 736	194	37 636	244	59 536	294	86 436	344	118 336	394	155 236	444	197 136	494	244 036	544	295 936	594	352 836
45	2025	95	9025	145	21 025	195	38 025	245	60 025	295	87 025	345	119 025	395	156 025	445	198 025	495	245 025	545	297 025	595	354 025
46	2116	96	9216	146	21 316	196	38 416	246	60 516	296	87 616	346	119 716	396	156 816	446	198 916	496	246 016	546	298 116	596	355 216
47	2209	97	9409	147	21 609	197	38 809	247	61 009	297	88 209	347	120 409	397	157 609	447	199 809	497	247 009	547	299 209	597	356 409
48	2304	98	9604	148	21 904	198	39 204	248	61 504	298	88 804	348	121 104	398	158 404	448	200 704	498	248 004	548	300 304	598	357 604
49	2401	99	9801	149	22 201	199	39 601	249	62 001	299	89 401	349	121 801	399	159 201	449	201 601	499	249 001	549	301 401	599	358 801
50	2500	100	10 000	150	22 500	200	40 000	250	62 500	300	90 000	350	122 500	400	160 000	450	202 500	500	250 000	550	302 500	600	360 000

Values of Logarithms L_n for n = 1.0 to 9.99

	0	1	2	3	4	5	6	7	8	9
1.0	0.000	0.004	0.009	0.013	0.017	0.021	0.025	0.029	0.033	0.037
1.1	0.041	0.045	0.049	0.053	0.057	0.061	0.064	0.068	0.072	0.076
1.2	0.079	0.083	0.086	0.090	0.093	0.097	0.100	0.104	0.107	0.111
1.3	0.114	0.117	0.121	0.124	0.127	0.130	0.134	0.137	0.140	0.143
1.4	0.146	0.149	0.152	0.155	0.158	0.161	0.164	0.167	0.170	0.173
1.5	0.176	0.179	0.182	0.185	0.188	0.190	0.193	0.196	0.199	0.201
1.6	0.204	0.207	0.210	0.212	0.215	0.217	0.220	0.223	0.225	0.228
1.7	0.230	0.233	0.236	0.238	0.241	0.243	0.245	0.248	0.250	0.253
1.8	0.255	0.258	0.260	0.262	0.265	0.267	0.270	0.272	0.274	0.276
1.9	0.279	0.281	0.283	0.286	0.288	0.290	0.292	0.294	0.297	0.299
2.0	0.301	0.303	0.305	0.308	0.310	0.312	0.314	0.316	0.318	0.320
2.1	0.322	0.324	0.326	0.328	0.330	0.332	0.334	0.336	0.338	0.340
2.2	0.342	0.344	0.346	0.348	0.350	0.352	0.354	0.356	0.358	0.360
2.3	0.362	0.364	0.365	0.367	0.369	0.371	0.373	0.375	0.377	0.378
2.4	0.380	0.382	0.384	0.386	0.387	0.389	0.391	0.393	0.394	0.396
2.5	0.398	0.400	0.401	0.403	0.405	0.407	0.408	0.410	0.412	0.413
2.6	0.415	0.417	0.418	0.420	0.422	0.423	0.425	0.427	0.428	0.430
2.7	0.431	0.433	0.435	0.436	0.438	0.439	0.441	0.442	0.444	0.446
2.8	0.447	0.449	0.450	0.452	0.453	0.455	0.456	0.458	0.459	0.461
2.9	0.462	0.464	0.465	0.467	0.468	0.470	0.471	0.473	0.474	0.476
3.0	0.477	0.479	0.480	0.481	0.483	0.484	0.486	0.487	0.489	0.490
3.1	0.491	0.493	0.494	0.496	0.497	0.498	0.500	0.501	0.502	0.504
3.2	0.505	0.507	0.508	0.509	0.510	0.512	0.513	0.515	0.516	0.517
3.3	0.519	0.520	0.521	0.522	0.524	0.525	0.526	0.528	0.529	0.530
3.4	0.531	0.533	0.534	0.535	0.537	0.538	0.539	0.540	0.542	0.543
3.5	0.544	0.545	0.547	0.548	0.549	0.550	0.551	0.553	0.554	0.555
3.6	0.556	0.558	0.559	0.560	0.561	0.562	0.563	0.565	0.566	0.567
3.7	0.568	0.569	0.571	0.572	0.573	0.574	0.575	0.576	0.577	0.579
3.8	0.580	0.581	0.582	0.583	0.584	0.585	0.587	0.588	0.589	0.590
3.9	0.591	0.592	0.593	0.594	0.596	0.597	0.598	0.599	0.600	0.601
4.0	0.602	0.603	0.604	0.605	0.606	0.607	0.609	0.610	0.611	0.612
4.1	0.613	0.614	0.615	0.616	0.617	0.618	0.619	0.620	0.621	0.622
4.2	0.623	0.624	0.625	0.626	0.627	0.628	0.629	0.630	0.631	0.632
4.3	0.633	0.634	0.635	0.636	0.637	0.638	0.639	0.640	0.641	0.642
4.4	0.643	0.644	0.645	0.646	0.647	0.648	0.649	0.650	0.651	0.652
4.5	0.653	0.654	0.655	0.656	0.657	0.658	0.659	0.660	0.661	0.662
4.6	0.663	0.664	0.665	0.666	0.667	0.667	0.668	0.669	0.670	0.671
4.7	0.672	0.673	0.674	0.675	0.676	0.677	0.678	0.679	0.679	0.680
4.8	0.681	0.682	0.683	0.684	0.685	0.686	0.687	0.688	0.688	0.689
4.9	0.690	0.691	0.692	0.693	0.694	0.695	0.695	0.696	0.697	0.698

To find the value of the logarithm of n

Match the first two digits of n (containing the decimal point) with those in the left-hand column of the table. Go along that line of the table to the three figure decimal number which lies directly under the value at the head of the table matching the third digit of n.

That will be the logarithm of n.

	0	1	2	3	4	5	6	7	8	9
5.0	0.699	0.700	0.700	0.702	0.702	0.703	0.704	0.705	0.706	0.707
5.1	0.708	0.708	0.709	0.711	0.710	0.712	0.713	0.713	0.714	0.715
5.2	0.716	0.717	0.718	0.719	0.719	0.720	0.721	0.722	0.723	0.723
5.3	0.724	0.725	0.726	0.727	0.728	0.728	0.729	0.730	0.731	0.732
5.4	0.732	0.733	0.734	0.735	0.736	0.736	0.737	0.738	0.739	0.740
5.5	0.740	0.741	0.742	0.743	0.744	0.744	0.745	0.746	0.747	0.747
5.6	0.748	0.749	0.750	0.751	0.751	0.752	0.753	0.754	0.754	0.755
5.7	0.756	0.757	0.757	0.758	0.759	0.760	0.760	0.761	0.762	0.763
5.8	0.763	0.764	0.765	0.766	0.766	0.767	0.768	0.769	0.769	0.770
5.9	0.771	0.772	0.772	0.773	0.774	0.775	0.775	0.776	0.777	0.777
6.0	0.778	0.779	0.780	0.780	0.781	0.782	0.782	0.783	0.784	0.785
6.1	0.785	0.786	0.787	0.787	0.788	0.789	0.790	0.790	0.791	0.792
6.2	0.792	0.793	0.794	0.794	0.795	0.796	0.797	0.797	0.798	0.799
6.3	0.799	0.800	0.801	0.801	0.802	0.803	0.803	0.804	0.805	0.806
6.4	0.806	0.807	0.808	0.808	0.809	0.810	0.810	0.811	0.812	0.812
6.5	0.813	0.814	0.814	0.815	0.816	0.816	0.817	0.818	0.818	0.819
6.6	0.820	0.820	0.821	0.822	0.822	0.823	0.823	0.824	0.825	0.825
6.7	0.826	0.827	0.827	0.828	0.829	0.829	0.830	0.831	0.831	0.832
6.8	0.833	0.833	0.834	0.834	0.835	0.836	0.836	0.837	0.838	0.838
6.9	0.839	0.839	0.840	0.841	0.841	0.842	0.843	0.843	0.844	0.844
7.0	0.845	0.846	0.846	0.847	0.848	0.848	0.849	0.849	0.850	0.851
7.1	0.851	0.852	0.852	0.853	0.854	0.854	0.855	0.856	0.856	0.857
7.2	0.857	0.858	0.859	0.859	0.860	0.860	0.861	0.861	0.862	0.863
7.3	0.863	0.864	0.865	0.865	0.866	0.866	0.867	0.867	0.868	0.869
7.4	0.869	0.870	0.870	0.871	0.872	0.872	0.873	0.873	0.874	0.874
7.5	0.875	0.876	0.876	0.877	0.877	0.878	0.879	0.879	0.880	0.880
7.6	0.881	0.881	0.882	0.883	0.883	0.884	0.884	0.885	0.885	0.886
7.7	0.886	0.887	0.888	0.888	0.889	0.889	0.890	0.890	0.891	0.892
7.8	0.892	0.893	0.893	0.894	0.894	0.895	0.895	0.896	0.897	0.897
7.9	0.898	0.898	0.899	0.899	0.900	0.900	0.901	0.901	0.902	0.903
8.0	0.903	0.904	0.904	0.905	0.905	0.906	0.906	0.907	0.907	0.908
8.1	0.908	0.909	0.910	0.910	0.911	0.911	0.912	0.912	0.913	0.913
8.2	0.914	0.914	0.915	0.915	0.916	0.916	0.917	0.918	0.918	0.919
8.3	0.919	0.920	0.920	0.921	0.921	0.922	0.922	0.923	0.923	0.924
8.4	0.924	0.925	0.925	0.926	0.926	0.927	0.927	0.928	0.928	0.929
8.5	0.929	0.930	0.930	0.931	0.931	0.932	0.932	0.933	0.933	0.934
8.6	0.935	0.935	0.936	0.936	0.937	0.937	0.938	0.938	0.939	0.939
8.7	0.940	0.940	0.941	0.941	0.942	0.942	0.943	0.943	0.943	0.944
8.8	0.944	0.945	0.945	0.946	0.946	0.947	0.947	0.948	0.948	0.949
8.9	0.949	0.950	0.950	0.951	0.951	0.952	0.952	0.953	0.953	0.954
9.0	0.954	0.955	0.955	0.956	0.956	0.957	0.957	0.958	0.958	0.959
9.1	0.959	0.960	0.960	0.960	0.961	0.961	0.962	0.962	0.963	0.963
9.2	0.964	0.964	0.965	0.965	0.966	0.966	0.967	0.967	0.968	0.968
9.3	0.968	0.969	0.969	0.970	0.970	0.971	0.971	0.972	0.972	0.973
9.4	0.973	0.974	0.974	0.975	0.975	0.975	0.976	0.976	0.977	0.977
9.5	0.978	0.978	0.979	0.979	0.980	0.980	0.980	0.981	0.981	0.982
9.6	0.982	0.983	0.983	0.984	0.984	0.985	0.985	0.985	0.986	0.986
9.7	0.987	0.987	0.988	0.988	0.989	0.989	0.989	0.990	0.990	0.991
9.8	0.991	0.992	0.992	0.993	0.993	0.993	0.994	0.994	0.995	0.995
9.9	0.996	0.996	0.997	0.997	0.997	0.998	0.998	0.999	0.999	1.000

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

×	1	2	3	4	5	6	7	8	9
1	**1**	2	3	4	5	6	7	8	9
2	2	**4**	6	8	10	12	14	16	18
3	3	6	**9**	12	15	18	21	24	27
4	4	8	12	**16**	20	24	28	32	36
5	5	10	15	20	**25**	30	35	40	45
6	6	12	18	24	30	**36**	42	48	54
7	7	14	21	28	35	42	**49**	56	63
8	8	16	24	32	40	48	56	**64**	72
9	9	18	27	36	45	54	63	72	**81**

Multiplication Tables

×	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

53 × 2 = 106
53 × 3 = 159
53 × 4 = 212
53 × 5 = 265
53 × 6 = 318
53 × 7 = 371
53 × 8 = 424
53 × 9 = 477

55 × 2 = 110
55 × 3 = 165
55 × 4 = 220
55 × 5 = 275
55 × 6 = 330
55 × 7 = 385
55 × 8 = 440
55 × 9 = 495

57 × 2 = 114
57 × 3 = 171
57 × 4 = 228
57 × 5 = 285
57 × 6 = 342
57 × 7 = 399
57 × 8 = 456
57 × 9 = 513

52 × 2 = 104
52 × 3 = 156
52 × 4 = 208
52 × 5 = 260
52 × 6 = 312
52 × 7 = 364
52 × 8 = 416
52 × 9 = 468

54 × 2 = 108
54 × 3 = 162
54 × 4 = 216
54 × 5 = 270
54 × 6 = 324
54 × 7 = 378
54 × 8 = 432
54 × 9 = 486

56 × 2 = 112
56 × 3 = 168
56 × 4 = 224
56 × 5 = 280
56 × 6 = 336
56 × 7 = 392
56 × 8 = 448
56 × 9 = 504

94 × 2 = 188
94 × 3 = 282
94 × 4 = 376
94 × 5 = 470
94 × 6 = 564
94 × 7 = 658
94 × 8 = 752
94 × 9 = 846

96 × 2 = 192
96 × 3 = 288
96 × 4 = 384
96 × 5 = 480
96 × 6 = 576
96 × 7 = 672
96 × 8 = 768
96 × 9 = 864

98 × 2 = 196
98 × 3 = 294
98 × 4 = 392
98 × 5 = 490
98 × 6 = 588
98 × 7 = 686
98 × 8 = 784
98 × 9 = 882

95 × 2 = 190
95 × 3 = 285
95 × 4 = 380
95 × 5 = 475
95 × 6 = 570
95 × 7 = 665
95 × 8 = 760
95 × 9 = 855

97 × 2 = 194
97 × 3 = 291
97 × 4 = 388
97 × 5 = 485
97 × 6 = 582
97 × 7 = 679
97 × 8 = 776
97 × 9 = 873

99 × 2 = 198
99 × 3 = 297
99 × 4 = 396
99 × 5 = 495
99 × 6 = 594
99 × 7 = 693
99 × 8 = 792
99 × 9 = 891

47 × 2 = 94
47 × 3 = 141
47 × 4 = 188
47 × 5 = 235
47 × 6 = 282
47 × 7 = 329
47 × 8 = 376
47 × 9 = 423

49 × 2 = 98
49 × 3 = 147
49 × 4 = 196
49 × 5 = 245
49 × 6 = 294
49 × 7 = 343
49 × 8 = 392
49 × 9 = 441

51 × 2 = 102
51 × 3 = 153
51 × 4 = 204
51 × 5 = 255
51 × 6 = 306
51 × 7 = 357
51 × 8 = 408
51 × 9 = 459

46 × 2 = 92
46 × 3 = 138
46 × 4 = 184
46 × 5 = 230
46 × 6 = 276
46 × 7 = 322
46 × 8 = 368
46 × 9 = 414

48 × 2 = 96
48 × 3 = 144
48 × 4 = 192
48 × 5 = 240
48 × 6 = 288
48 × 7 = 336
48 × 8 = 384
48 × 9 = 432

50 × 2 = 100
50 × 3 = 150
50 × 4 = 200
50 × 5 = 250
50 × 6 = 300
50 × 7 = 350
50 × 8 = 400
50 × 9 = 450

29 × 2 = 58
29 × 3 = 87
29 × 4 = 116
29 × 5 = 145
29 × 6 = 174
29 × 7 = 203
29 × 8 = 232
29 × 9 = 261

31 × 2 = 62
31 × 3 = 93
31 × 4 = 124
31 × 5 = 155
31 × 6 = 186
31 × 7 = 217
31 × 8 = 248
31 × 9 = 279

33 × 2 = 66
33 × 3 = 99
33 × 4 = 132
33 × 5 = 165
33 × 6 = 198
33 × 7 = 231
33 × 8 = 264
33 × 9 = 297

28 × 2 = 56
28 × 3 = 84
28 × 4 = 112
28 × 5 = 140
28 × 6 = 168
28 × 7 = 196
28 × 8 = 224
28 × 9 = 252

30 × 2 = 60
30 × 3 = 90
30 × 4 = 120
30 × 5 = 150
30 × 6 = 180
30 × 7 = 210
30 × 8 = 240
30 × 9 = 270

32 × 2 = 64
32 × 3 = 96
32 × 4 = 128
32 × 5 = 160
32 × 6 = 192
32 × 7 = 224
32 × 8 = 256
32 × 9 = 288

22 × 2 = 44
22 × 3 = 66
22 × 4 = 88
22 × 5 = 110
22 × 6 = 132
22 × 7 = 154
22 × 8 = 176
22 × 9 = 198

24 × 2 = 48
24 × 3 = 72
24 × 4 = 96
24 × 5 = 120
24 × 6 = 144
24 × 7 = 168
24 × 8 = 192
24 × 9 = 216

26 × 2 = 52
26 × 3 = 78
26 × 4 = 104
26 × 5 = 130
26 × 6 = 156
26 × 7 = 182
26 × 8 = 208
26 × 9 = 234

23 × 2 = 46
23 × 3 = 69
23 × 4 = 92
23 × 5 = 115
23 × 6 = 138
23 × 7 = 161
23 × 8 = 184
23 × 9 = 207

25 × 2 = 50
25 × 3 = 75
25 × 4 = 100
25 × 5 = 125
25 × 6 = 150
25 × 7 = 175
25 × 8 = 200
25 × 9 = 225

27 × 2 = 54
27 × 3 = 81
27 × 4 = 108
27 × 5 = 135
27 × 6 = 162
27 × 7 = 189
27 × 8 = 216
27 × 9 = 243

71 × 2 = 142
71 × 3 = 213
71 × 4 = 284
71 × 5 = 355
71 × 6 = 426
71 × 7 = 497
71 × 8 = 568
71 × 9 = 639

73 × 2 = 146
73 × 3 = 219
73 × 4 = 292
73 × 5 = 365
73 × 6 = 438
73 × 7 = 511
73 × 8 = 584
73 × 9 = 657

75 × 2 = 150
75 × 3 = 225
75 × 4 = 300
75 × 5 = 375
75 × 6 = 450
75 × 7 = 525
75 × 8 = 600
75 × 9 = 675

70 × 2 = 140
70 × 3 = 210
70 × 4 = 280
70 × 5 = 350
70 × 6 = 420
70 × 7 = 490
70 × 8 = 560
70 × 9 = 630

72 × 2 = 144
72 × 3 = 216
72 × 4 = 288
72 × 5 = 360
72 × 6 = 432
72 × 7 = 504
72 × 8 = 576
72 × 9 = 648

74 × 2 = 148
74 × 3 = 222
74 × 4 = 296
74 × 5 = 370
74 × 6 = 444
74 × 7 = 518
74 × 8 = 592
74 × 9 = 666

76 × 2 = 152
76 × 3 = 228
76 × 4 = 304
76 × 5 = 380
76 × 6 = 456
76 × 7 = 532
76 × 8 = 608
76 × 9 = 684

78 × 2 = 156
78 × 3 = 234
78 × 4 = 312
78 × 5 = 390
78 × 6 = 468
78 × 7 = 546
78 × 8 = 624
78 × 9 = 702

80 × 2 = 160
80 × 3 = 240
80 × 4 = 320
80 × 5 = 400
80 × 6 = 480
80 × 7 = 560
80 × 8 = 640
80 × 9 = 720

77 × 2 = 154
77 × 3 = 231
77 × 4 = 308
77 × 5 = 385
77 × 6 = 462
77 × 7 = 539
77 × 8 = 616
77 × 9 = 693

79 × 2 = 158
79 × 3 = 237
79 × 4 = 316
79 × 5 = 395
79 × 6 = 474
79 × 7 = 553
79 × 8 = 632
79 × 9 = 711

81 × 2 = 162
81 × 3 = 243
81 × 4 = 324
81 × 5 = 405
81 × 6 = 486
81 × 7 = 567
81 × 8 = 648
81 × 9 = 729

82 × 2 = 164
82 × 3 = 246
82 × 4 = 328
82 × 5 = 410
82 × 6 = 492
82 × 7 = 574
82 × 8 = 656
82 × 9 = 738

83 × 2 = 166
83 × 3 = 249
83 × 4 = 332
83 × 5 = 415
83 × 6 = 498
83 × 7 = 581
83 × 8 = 664
83 × 9 = 747

16 × 2 = 32
16 × 3 = 48
16 × 4 = 64
16 × 5 = 80
16 × 6 = 96
16 × 7 = 112
16 × 8 = 128
16 × 9 = 144

17 × 2 = 34
17 × 3 = 51
17 × 4 = 68
17 × 5 = 85
17 × 6 = 102
17 × 7 = 119
17 × 8 = 136
17 × 9 = 153

10 × 2 = 20
10 × 3 = 30
10 × 4 = 40
10 × 5 = 50
10 × 6 = 60
10 × 7 = 70
10 × 8 = 80
10 × 9 = 90

11 × 2 = 22
11 × 3 = 33
11 × 4 = 44
11 × 5 = 55
11 × 6 = 66
11 × 7 = 77
11 × 8 = 88
11 × 9 = 99

88 × 2 = 176
88 × 3 = 264
88 × 4 = 352
88 × 5 = 440
88 × 6 = 528
88 × 7 = 616
88 × 8 = 704
88 × 9 = 792

89 × 2 = 178
89 × 3 = 267
89 × 4 = 356
89 × 5 = 445
89 × 6 = 534
89 × 7 = 623
89 × 8 = 712
89 × 9 = 801

84 × 2 = 168
84 × 3 = 252
84 × 4 = 336
84 × 5 = 420
84 × 6 = 504
84 × 7 = 588
84 × 8 = 672
84 × 9 = 756

85 × 2 = 170
85 × 3 = 255
85 × 4 = 340
85 × 5 = 425
85 × 6 = 510
85 × 7 = 595
85 × 8 = 680
85 × 9 = 765

18 × 2 = 36
18 × 3 = 54
18 × 4 = 72
18 × 5 = 90
18 × 6 = 108
18 × 7 = 126
18 × 8 = 144
18 × 9 = 162

19 × 2 = 38
19 × 3 = 57
19 × 4 = 76
19 × 5 = 95
19 × 6 = 114
19 × 7 = 133
19 × 8 = 152
19 × 9 = 171

12 × 2 = 24
12 × 3 = 36
12 × 4 = 48
12 × 5 = 60
12 × 6 = 72
12 × 7 = 84
12 × 8 = 96
12 × 9 = 108

13 × 2 = 26
13 × 3 = 39
13 × 4 = 52
13 × 5 = 65
13 × 6 = 78
13 × 7 = 91
13 × 8 = 104
13 × 9 = 117

90 × 2 = 180
90 × 3 = 270
90 × 4 = 360
90 × 5 = 450
90 × 6 = 540
90 × 7 = 630
90 × 8 = 720
90 × 9 = 810

91 × 2 = 182
91 × 3 = 273
91 × 4 = 364
91 × 5 = 455
91 × 6 = 546
91 × 7 = 637
91 × 8 = 728
91 × 9 = 819

86 × 2 = 172
86 × 3 = 258
86 × 4 = 344
86 × 5 = 430
86 × 6 = 516
86 × 7 = 602
86 × 8 = 688
86 × 9 = 774

87 × 2 = 174
87 × 3 = 261
87 × 4 = 348
87 × 5 = 435
87 × 6 = 522
87 × 7 = 609
87 × 8 = 696
87 × 9 = 783

20 × 2 = 40
20 × 3 = 60
20 × 4 = 80
20 × 5 = 100
20 × 6 = 120
20 × 7 = 140
20 × 8 = 160
20 × 9 = 180

21 × 2 = 42
21 × 3 = 63
21 × 4 = 84
21 × 5 = 105
21 × 6 = 126
21 × 7 = 147
21 × 8 = 168
21 × 9 = 189

14 × 2 = 28
14 × 3 = 42
14 × 4 = 56
14 × 5 = 70
14 × 6 = 84
14 × 7 = 98
14 × 8 = 112
14 × 9 = 126

15 × 2 = 30
15 × 3 = 45
15 × 4 = 60
15 × 5 = 75
15 × 6 = 90
15 × 7 = 105
15 × 8 = 120
15 × 9 = 135

92 × 2 = 184
92 × 3 = 276
92 × 4 = 368
92 × 5 = 460
92 × 6 = 552
92 × 7 = 644
92 × 8 = 736
92 × 9 = 828

93 × 2 = 186
93 × 3 = 279
93 × 4 = 372
93 × 5 = 465
93 × 6 = 558
93 × 7 = 651
93 × 8 = 744
93 × 9 = 837

34 × 2 = 68
34 × 3 = 102
34 × 4 = 136
34 × 5 = 170
34 × 6 = 204
34 × 7 = 238
34 × 8 = 272
34 × 9 = 306

35 × 2 = 70
35 × 3 = 105
35 × 4 = 140
35 × 5 = 175
35 × 6 = 210
35 × 7 = 245
35 × 8 = 280
35 × 9 = 315

36 × 2 = 72
36 × 3 = 108
36 × 4 = 144
36 × 5 = 180
36 × 6 = 216
36 × 7 = 252
36 × 8 = 288
36 × 9 = 324

37 × 2 = 74
37 × 3 = 111
37 × 4 = 148
37 × 5 = 185
37 × 6 = 222
37 × 7 = 259
37 × 8 = 296
37 × 9 = 333

38 × 2 = 76
38 × 3 = 114
38 × 4 = 152
38 × 5 = 190
38 × 6 = 228
38 × 7 = 266
38 × 8 = 304
38 × 9 = 342

39 × 2 = 78
39 × 3 = 117
39 × 4 = 156
39 × 5 = 195
39 × 6 = 234
39 × 7 = 273
39 × 8 = 312
39 × 9 = 351

40 × 2 = 80
40 × 3 = 120
40 × 4 = 160
40 × 5 = 200
40 × 6 = 240
40 × 7 = 280
40 × 8 = 320
40 × 9 = 360

41 × 2 = 82
41 × 3 = 123
41 × 4 = 164
41 × 5 = 205
41 × 6 = 246
41 × 7 = 287
41 × 8 = 328
41 × 9 = 369

42 × 2 = 84
42 × 3 = 126
42 × 4 = 168
42 × 5 = 210
42 × 6 = 252
42 × 7 = 294
42 × 8 = 336
42 × 9 = 378

43 × 2 = 86
43 × 3 = 129
43 × 4 = 172
43 × 5 = 215
43 × 6 = 258
43 × 7 = 301
43 × 8 = 344
43 × 9 = 387

44 × 2 = 88
44 × 3 = 132
44 × 4 = 176
44 × 5 = 220
44 × 6 = 264
44 × 7 = 308
44 × 8 = 352
44 × 9 = 396

45 × 2 = 90
45 × 3 = 135
45 × 4 = 180
45 × 5 = 225
45 × 6 = 270
45 × 7 = 315
45 × 8 = 360
45 × 9 = 405

58 × 2 = 116
58 × 3 = 174
58 × 4 = 232
58 × 5 = 290
58 × 6 = 348
58 × 7 = 406
58 × 8 = 464
58 × 9 = 522

59 × 2 = 118
59 × 3 = 177
59 × 4 = 236
59 × 5 = 295
59 × 6 = 354
59 × 7 = 413
59 × 8 = 472
59 × 9 = 531

60 × 2 = 120
60 × 3 = 180
60 × 4 = 240
60 × 5 = 300
60 × 6 = 360
60 × 7 = 420
60 × 8 = 480
60 × 9 = 540

61 × 2 = 122
61 × 3 = 183
61 × 4 = 244
61 × 5 = 305
61 × 6 = 366
61 × 7 = 427
61 × 8 = 488
61 × 9 = 549

62 × 2 = 124
62 × 3 = 186
62 × 4 = 248
62 × 5 = 310
62 × 6 = 372
62 × 7 = 434
62 × 8 = 496
62 × 9 = 558

63 × 2 = 126
63 × 3 = 189
63 × 4 = 252
63 × 5 = 315
63 × 6 = 378
63 × 7 = 441
63 × 8 = 504
63 × 9 = 567

64 × 2 = 128
64 × 3 = 192
64 × 4 = 256
64 × 5 = 320
64 × 6 = 384
64 × 7 = 448
64 × 8 = 512
64 × 9 = 576

65 × 2 = 130
65 × 3 = 195
65 × 4 = 260
65 × 5 = 325
65 × 6 = 390
65 × 7 = 455
65 × 8 = 520
65 × 9 = 585

66 × 2 = 132
66 × 3 = 198
66 × 4 = 264
66 × 5 = 330
66 × 6 = 396
66 × 7 = 462
66 × 8 = 528
66 × 9 = 594

67 × 2 = 134
67 × 3 = 201
67 × 4 = 268
67 × 5 = 335
67 × 6 = 402
67 × 7 = 469
67 × 8 = 536
67 × 9 = 603

68 × 2 = 136
68 × 3 = 204
68 × 4 = 272
68 × 5 = 340
68 × 6 = 408
68 × 7 = 476
68 × 8 = 544
68 × 9 = 612

69 × 2 = 138
69 × 3 = 207
69 × 4 = 276
69 × 5 = 345
69 × 6 = 414
69 × 7 = 483
69 × 8 = 552
69 × 9 = 621

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