Courtesy

COURSE of INSTRUCTION

For Use

ONLY WITH THE

COMPTOMETER

REG. U. S. PAT. OFF.

ADDING-CALCULATING MACHINE

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Course of Instruction

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COMPTOMETER

REG. U.S. PAT. OFF.
ADDING-CALCULATING MACHINE

COMPTOMETER DIVISION
FELT & TARRANT MFG. CO.
1735 NORTH PAULINA STREET
CHICAGO 22, ILLINOIS

INTRODUCTION

Long has been the need for a concise text to help the students who wish to learn the fundamentals of Comptometer operation.

The Courtesy Course of Instruction has been arranged so that the average person can master these fundamentals in eight evening sessions.

These fundamental lessons consist of: Addition, Multiplication, Subtraction and Division, so arranged that the practical application of the Comptometer to office routines is covered in these lessons.

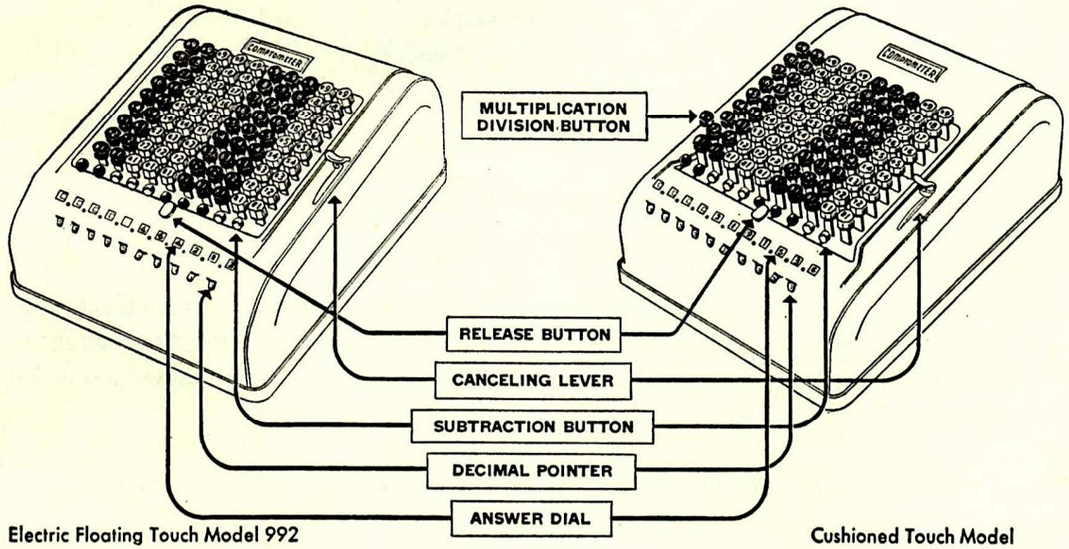
The text material can be covered in six sessions, allowing two sessions of individual effort on the forms brought by each student from the different offices.

INDEX OF MATERIAL

Description of Comptometer

The Comptometer is a key-driven adding and calculating machine which performs quickly and easily all forms of arithmetical figuring involving addition, multiplication, division, and subtraction.

each key top is a large and small figure. The large figures are used for addition and multiplication; the small figures for division and subtraction. The answer dials show the result of the calculation. The lever at



Electric Floating Touch Model 992 — Cushioned Touch Model

Method of operation is the same for Models J, K, and M

Operation is exceedingly simple—no operating lever to pull, no crank to turn, no preliminary setting of dials. Nothing to do but press the keys and read the answer —the machine does the rest.

The keyboard is arranged in eight or more columns* of nine keys each, which are grouped in alternating sections, colored green and ivory or light green. On the right, called the canceling lever, clears the answer dials. The pointers above the answer dials are used to point off decimals. The cut-offs or buttons at the left of each column are used for subtraction. The release key at the upper right-hand corner or just above the answer dials unlocks the keyboard after an incomplete key stroke error has been corrected. See page 9 for proper use of controlled-key.

***The Comptometer is manufactured in three standard sizes: 8, 10, and 12 columns. A 20-column Comptometer is also manufactured for use in heavy statistical and distribution work.**

Touch Method of Addition

The touch method of addition provides the greatest degree of speed and accuracy and is simple and easy to learn. Only the lower half of the keyboard is used in touch addition; all keys are within easy reach of the fingers.

To add 1-2-3-4-5, depress respective keys so numbered:

To add 6, depress 3 twice
To add 7, depress 3 and 4
To add 8, depress 4 twice
To add 9, depress 4 and 5

Upon examining the keys it will be noticed that the odd-number keys: 1, 3, 5, etc., are concave. The even keys: 2, 4, etc., are flat-topped. This is to facilitate touch operation.

Begin at the top of each column and add down. Use the index finger for adding in all columns of figures except the last number of every item. Use the second finger only for adding the last number of every item. Find the keys by sense of touch. Look at the number and add it into the comptometer exactly as it is written.

Do not think about the number or repeat it mentally or orally. Just see the number and put it into the Comptometer.

In adding it is necessary to acquire a smooth rhythmic stroke. Hold a pencil between the thumb and palm of the operating hand. This helps to balance the hand and the pencil is always in readiness for writing down answers.

A Comptometer improperly placed is detrimental to speed and ease of operation. It should be placed at right angle, slightly to the right of the operator, with the left edge in a direct line with the center of the body. The desk and the seat of the chair should be of a height to permit the feet to touch the floor and the fingers to rest comfortably on the keys.

Addition Exercises

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
22	33	43	23	67	84	25
23	34	33	36	43	47	92
33	43	12	43	77	63	14
34	32	54	48	65	84	52
44	31	23	35	95	93	71
45	35	32	49	48	32	42
55	53	24	43	64	26	35
54	25	25	36	23	82	92
43	24	35	42	72	48	25
353	310	281	355	554	559	448

Add each column and compare the total obtained with that shown at foot of column. For practice add each column at least four times. If an error is made it is usually the result of trying to go too fast. Speed will come with a little practice.

Addition Exercises

Carelessness in reading numbers is often the cause of errors.
Practice very slowly on the following. Keep the eyes constantly on the figures you are adding. If the keyboard locks, it is signaling an incompleted key-stroke error. Give each key a full stroke.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
89	72	75	29	88	42	28	56	25	82
73	34	83	83	96	51	31	48	20	12
35	68	96	45	30	32	40	17	34	96
98	75	29	75	24	98	64	90	75	70
54	93	84	90	21	41	98	17	34	34
23	86	63	45	75	42	35	74	75	22
48	34	84	96	34	63	13	64	24	96
73	21	26	84	96	96	70	24	31	34
31	55	75	21	11	42	22	68	70	21
48	45	45	74	21	80	44	71	96	70
78	83	98	35	34	75	45	30	75	34
34	42	93	75	84	29	91	34	21	35
61	31	70	32	75	73	30	73	95	34
78	13	21	26	80	96	96	24	31	22
48	31	12	52	48	59	59	42	13	57
45	37	82	29	83	90	73	28	57	10
73	48	34	88	57	13	30	60	22	27
84	45	79	41	92	22	98	75	80	34
54	70	21	12	68	81	54	43	21	48
50	63	44	33	40	26	17	21	15	13
1177	1046	1214	1065	1159	1151	1038	959	914	851

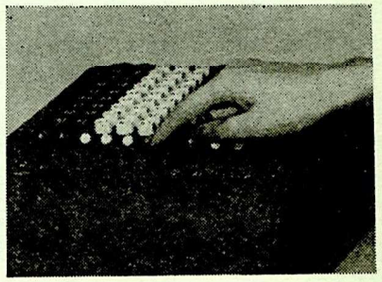
Addition Exercises

No. 11	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20
24	96	43	53	45	29	14	66	54	23
43	31	81	29	31	17	53	58	54	23
61	42	63	43	13	26	25	19	13	53
32	75	56	43	32	72	10	92	20	54
98	34	80	59	30	57	59	20	25	63
70	63	12	95	54	59	75	21	53	75
64	35	36	20	92	30	34	49	53	96
35	10	71	56	54	86	25	29	43	90
75	31	42	36	23	25	29	21	50	75
12	98	92	42	34	75	47	21	31	14
67	36	32	31	15	55	45	45	26	42
98	45	48	67	98	93	30	12	13	53
14	13	31	84	29	24	96	67	84	34
90	10	40	45	92	30	47	40	45	67
35	56	53	80	52	47	45	59	93	12
33	75	84	62	25	45	73	84	54	50
75	37	48	45	70	63	82	29	34	79
84	62	25	21	44	29	80	41	10	33
60	80	57	92	68	40	95	13	22	81
25	52	26	48	57	33	57	22	88	20
—	—	—	—	—	—	—	—	—	—

1095

Controlled-Key

The "Controlled-Key" is a positive system of automatic control which prevents operating errors caused by fumbled or incomplete key strokes. The "Controlled-Key" mechanism gives instant signal of an operating error, by locking all columns except the column in which the incomplete key stroke was made — this is left open for correction. With positive protection against operating errors, the operator can speed up safely and be assured of a higher degree of first time accuracy.



After correcting the incomplete key stroke, touch the release key and continue adding

How to Correct an Incomplete Key Stroke

There is no guesswork required in using Controlled-Key, neither is there a complicated formula to follow.

Method of Correcting Operating Errors When H-J-M-K and 3D11 Comptometers Are Being Used

In adding and subtracting, when a locked keyboard signals an operating error, the use of Controlled-Key is as simple as going back to the last key operated. If this key is left open for correction, complete the stroke, touch the release button and continue adding, starting on the key that locked and signaled the error as shown in the example.

Example:

In adding this short column, intentionally press the 5 cent key part way down. On attempting to strike the 2-key, you find it locked. Go back and depress again the last key operated (5), touch the release button and the correction is made. Continue adding on the key that locked and signaled the error, 2.	.45 .23 .34 .12 1.14

In adding, when a locked keyboard signals an operating error and the last key operated is found locked, touch the release button, add in the previous key in same column, and continue adding with the key that locked and signaled the error as shown in the example.

Example:

In adding this column, intentionally press the 30-key part way down. Then give the 40-key a regular stroke. On attempting to strike the 5-key, you find it locked. To correct, go back to the last key depressed (40) and you will find it locked. Touch the release button and add in the previous key (30). This completes the correction. Continue adding, beginning on the key that locked and signaled the error, 5.	.22 (3) .75 .16 .80 .20 2.13

Method of Correcting Operating Errors When the New Electric 992 Comptometer Is Being Used

In adding and subtracting, when a locked key signals an operating error, the key on which the operating error was made will be held in a depressed position. Complete the stroke on the depressed key and touch the Release Button. Continue adding with the key that locked and signaled the operating error.

In Multiplication and Division

When the key locks, the positive danger signal prevents an error slipping into an answer without the knowledge of the operator.

Old Method of Operating Error Correction

Owing to the speed of the Comptometer, it is simpler and faster to cancel and go over the problem than to stop and make the correction.

New Method of Operating Error Correction Non-Electric Comptometer

Simply push back the multiplication and division button at left of keyboard before starting a multiplication or division operation. If, and when, an operating error is made, all the keys held will lock except the key or keys misoperated. These are left open so that the operator may correct the operating error without removing fingers from the keyboard. Depress the key or keys that can be depressed and continue operating.

Electric Comptometer

When an operating error is made, all the keyboard locks except the key or keys on which the operating error was made. The operating error is indicated visually and by touch in that the key or keys misoperated are held in a depressed position and remain so until the operating error has been corrected. Make a full depression of the keys misoperated. Touch the Release Button and continue through the operation.

Addition Exercises

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
347	892	193	778	418	774	460	672	326	658
656	578	315	160	240	101	145	223	445	268
179	857	825	576	814	596	582	219	148	87
145	214	467	235	59	66	330	25	234	824
23	12	53	47	533	877	92	192	768	315
915	455	819	752	44	14	31	48	71	36
29	218	21	148	197	729	975	786	47	612
246	455	533	424	267	883	334	421	635	667
823	876	895	555	788	966	436	781	664	350
348	375	749	634	229	434	850	958	877	543
662	16	114	43	187	635	754	33	624	317
562	367	112	412	361	336	503	255	352	453
81	67	37	68	51	13	24	541	360	45
806	227	458	513	237	451	647	236	648	619
33	575	11	24	876	217	91	11	25	123

No. 11	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20
111	242	666	484	343	681	298	627	731	544
121	515	626	434	393	481	498	729	854	326
131	102	696	494	373	281	698	326	462	495
141	551	636	424	313	781	898	475	235	738
151	301	616	474	323	181	998	917	945	219
161	141	646	464	353	581	798	169	816	682
171	402	676	414	393	881	598	326	653	731
181	315	686	484	363	381	398	652	278	854
191	205	606	424	343	781	198	837	536	462
161	919	616	464	373	981	498	235	122	235
191	828	626	474	393	381	598	641	389	946
131	747	636	434	363	581	798	316	892	817
151	616	656	414	323	281	898	752	371	654
141	343	686	454	343	681	398	276	737	279
171	252	636	424	373	181	198	965	455	536

First-time Accuracy

Only when machine figuring becomes entirely automatic and the human element of error in operation ceases to be a factor, can there be dependable first-time accuracy in mechanical calculation.

This is evidenced by the fact that accounting offices in which first-time results are accepted without being checked or refigured, are so few as to be negligible. When working against a predetermined total such proof is, of course, unnecessary.

First-time machine figuring, however, should closely approximate absolute accuracy on all classes of figure work.

With the Comptometer it does that.

In figuring a recent inventory of a chain of 100 grocery stores, the first-time accuracy of the Comptometer was 99.551%.

Addition Exercises

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10
.32	6.16	2.83	.41	6.62	.77	8.93	.92	7.44	.22
.54	.75	.44	.71	3.85	.39	3.84	8.65	5.41	.93
.80	3.12	3.92	7.63	5.30	1.64	2.46	7.51	8.51	4.07
1.89	.78	.50	.44	3.86	4.87	.16	9.88	.24	3.23
.35	1.39	8.58	5.99	5.23	5.99	.01	3.08	2.03	6.46
4.16	.10	.27	.53	5.74	.81	.85	.84	2.03	5.48
9.45	7.99	8.05	4.37	.21	5.29	.37	.92	.19	.71
.37	.69	.50	6.81	4.88	.82	7.59	4.12	8.88	.84
7.66	4.48	4.47	2.61	.71	1.95	4.00	7.52	.34	.63
.12	.45	.35	3.84	.87	.67	1.80	1.88	.25	7.11
6.35	.74	7.24	.28	9.55	2.49	.15	.98	.12	.57
.41	2.32	.13	1.05	.93	.31	.57	.54	.12	.81
.15	.61	4.62	.79	8.94	7.55	8.63	.33	5.15	6.67
5.42	.27	.81	5.24	.52	.85	9.27	.11	5.90	.06
.03	9.05	5.34	.35	.41	1.58	.19	5.05	5.84	.35

Addition Exercises — Continued

No. 11	No. 12	No. 13	No. 14	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20
.75	2.13	.81	6.05	1.41	1.00	2.83	.41	5.31	.62
5.16	.55	9.36	.78	3.05	3.66	.44	.71	2.45	.29
.17	3.23	.22	.05	.84	1.84	3.92	7.63	.73	.73
4.87	.81	.97	2.87	.07	.85	.50	.44	4.22	.48
.10	3.34	.43	.07	.22	4.35	8.58	5.99	.14	.85
5.12	.38	8.68	7.28	4.95	.76	.27	.43	.32	.16
.83	.43	.74	.29	7.17	9.90	8.05	4.37	6.21	.30
.44	5.77	1.09	.32	.01	.80	.50	6.81	.55	6.04
.15	.29	.65	.63	.92	.56	4.47	2.61	.23	.95
5.25	4.44	4.30	5.01	.64	2.92	.35	3.84	1.44	3.21
.94	.83	.19	.50	4.79	4.89	7.24	.28	.02	2.89
.16	.27	.51	.56	6.16	5.28	.13	1.05	.31	4.12
5.91	.78	6.98	1.42	3.78	.36	4.62	.79	3.23	1.78
.41	5.24	.42	.59	.47	.61	.81	5.24	.16	8.33
.64	.74	7.67	.64	.14	3.85	.23	8.37	3.41	.67

No. 21	No. 22	No. 23	No. 24	No. 25	No. 26	No. 27	No. 28	No. 29	No. 30
.13	6.48	2.41	.16	8.69	9.25	7.14	.23	4.18	2.63
.54	.75	.44	.71	3.85	.80	1.89	.35	4.16	9.45
.37	7.66	.12	6.35	.41	.15	5.42	.03	.14	3.11
.27	2.96	8.82	6.16	.75	3.12	.78	1.39	.10	7.99
.69	4.48	.45	.74	2.32	.61	.27	9.05	.26	1.79
.90	.12	8.75	2.83	.44	3.92	.50	8.58	.27	8.05
.50	4.47	.35	7.24	.13	4.62	.81	5.34	.23	3.14
1.50	.46	2.67	.41	.71	7.63	.44	5.99	.43	4.37
6.81	2.61	3.84	.28	1.05	.93	8.94	.52	.41	7.37
9.18	.98	.18	.17	6.62	3.85	5.30	3.86	5.23	5.74
.21	4.88	.71	8.87	9.95	.93	8.94	2.49	3.11	.85
7.55	.41	7.37	.19	9.27	.81	5.05	.24	8.99	1.44
7.44	5.41	8.51	.24	.74	3.85	8.99	2.24	.22	.93
4.07	3.23	6.46	5.48	.81	.74	.63	7.11	.57	6.65
1.66	8.91	.40	3.60	4.18	7.77	.59	4.11	6.16	2.01

EXPENSE SHEET

To SMITH & TAYLOR MFG. CO.
Chicago, Illinois

Expenses during month of.....19....

Signature of Solicitor

Date	Hotel	Meals	Baggage	Carfare	Incidentals	Totals
1	3 50	1 25	75	9 80	10	15 40
2	1 50	1 50	80			
3	3 00	2 25	1 25	4 35	1 10	
4	1 75	4 00	30			
5	1 50	5 25	40	8 20		
6	1 75	75				
7	4 25	3 15	1 50	1 25	95	
8	3 00	1 65	7 80	2 55		
9	75	1 95	2 55			
10	1 00	2 25		4 60	5 80	
11	2 00	1 50	1 55	2 25	1 25	
12	2 40	4 00	75	1 30		
13	1 50	2 25	80	2 25		
14	4 50	3 00	45	7 50	3 40	
15	1 75	1 75	1 25	1 50		
16	1 50	2 25	1 05			
17	3 00	8 25				
18	1 50	5 95	4 25		1 10	
19	1 00	2 80				
20	3 25	4 20	80	2 10	4 80	
21	1 75	2 25	40	8 95		
22	1 50	4 35	1 25	2 40		
23	4 25	1 25	2 10	3 50		
24	1 00	3 40	90	5 95	9 50	
25	2 25	1 25	85	4 10		
26	3 00	3 15	75	5 55		
27	1 50	3 25		7 85		
28	1 75	4 25	1 25	1 10	1 25	
29	4 00	1 00	1 10	2 10		
30	1 25	6 95	95	1 50		

Find the expense (a) for each day, (b) for each item, and (c) the total expense for the month.

NOTE: A flexible ruler, blotter or any straight edge will be an aid in following the lines.

Addition Exercises

No. 1	No. 2	No. 3	No. 4	No. 5
$31.23	$16.84	$82.34	$73.25	$35.29
.45	.90	8.97	4.98	2.29
41.98	3.27	.69	.89	25.90
9.43	2.32	92.38	86.30	.58
.69	24.38	6.72	5.29	94.83
42.50	9.67	4.56	11.56	12.89
4.58	98.93	52.84	41.13	.73
1.13	4.52	72.59	.25	71.12
.67	.69	66.68	3.29	1.29
52.43	24.39	.37	.75	81.20
1.20	.47	.83	51.29	.67
2.03	35.70	76.45	77.26	.40
29.84	1.15	26.83	1.00	46.80
.76	.26	12.28	87.65	39.80
5.29	72.03	13.33	61.59	43.51

No. 6	No. 7	No. 8	No. 9	No. 10
$21.15	$71.23	$73.31	$45.43	$26.75
3.00	33.45	.64	57.45	18.45
.59	.43	44.00	43.22	.54
72.29	45.34	8.19	.76	55.41
4.04	9.08	72.35	58.07	63.25
5.55	4.00	7.77	.59	2.22
87.45	.64	33.45	63.00	41.15
.79	28.33	77.16	1.56	.35
63.37	1.12	.74	8.62	24.54
1.29	96.55	22.21	75.78	1.38
4.34	4.12	5.34	1.81	97.86
46.51	.78	96.55	28.99	73.03
21.47	54.56	15.06	.48	2.46
.35	92.57	.65	77.69	.41
98.75	13.14	25.63	52.23	14.15

No. 11	No. 12	No. 13	No. 14	No. 15
$ 2.15	$49.80	$51.66	$34.65	$28.30
98.92	85.67	4.02	46.57	37.64
.72	12.41	30.35	95.70	83.59
76.44	.65	19.55	5.11	.22
2.89	4.36	82.71	24.67	4.86
.46	43.74	3.30	6.85	35.74
28.61	35.78	60.90	48.61	47.11
87.54	3.63	7.86	13.61	19.85
45.67	48.70	43.50	9.64	4.60
1.23	26.15	79.44	65.42	99.61

Addition Exercises

No. 1	No. 2	No. 3	No. 4	No. 5
$45.63	$12.25	$82.71	$82.02	$35.64
37.16	3.26	36.27	75.15	28.71
1.27	17.58	44.35	.25	12.35
85.09	9.27	26.28	12.12	43.26
73.62	83.26	10.13	32.12	12.34
7.20	33.43	2.81	5.94	56.78
.35	50.50	32.05	9.56	92.29
82.26	6.57	.17	29.58	75.48
35.35	18.70	8.36	45.73	39.62
71.26	33.27	27.56	39.62	75.58
89.43	24.43	42.81	75.57	8.56
73.64	7.58	73.58	83.26	29.58
27.26	.32	9.62	54.87	45.63
59.86	92.24	23.51	32.24	37.11
17.38	16.57	19.25	17.62	2.50
6.58	75.46	5.48	34.54	.35
86.57	23.21	98.70	3.28	3.76
11.19	45.36	4.36	64.35	83.43
5.57	8.69	53.49	7.78	56.67
86.57	85.80	5.48	86.70	4.38
1.11	6.57	86.70	11.18	75.69
22.97	75.66	16.59	28.79	20.98

No. 6	No. 7	No. 8	No. 9	No. 10
$57.56	$28.35	$23.56	$71.11	$51.97
21.13	7.10	.89	28.35	62.74
.27	83.26	5.11	7.10	28.25
3.15	31.24	24.35	83.26	63.42
62.27	53.35	71.26	31.24	89.71
.85	24.65	.89	31.66	25.32
93.26	3.21	3.33	24.65	19.43
75.18	4.04	75.68	6.53	38.51
32.72	21.27	83.26	12.86	25.46
8.15	.35	.50	3.21	47.63
26.47	81.26	84.24	4.04	57.75
60.01	93.57	56.76	21.38	27.59
.15	8.18	.89	.35	18.76
72.38	36.63	7.05	84.26	53.83
99.59	22.34	94.26	93.57	95.54
5.49	96.57	3.21	8.18	31.65
85.47	3.27	16.58	36.73	94.58
2.27	85.46	7.50	22.34	21.35
84.37	3.39	86.70	2.28	72.86
3.28	18.60	3.27	43.25	47.35
68.75	44.35	17.59	78.90	39.63
7.69	3.28	86.70	4.38	11.87

Addition Exercises

No. 1	*No. 2*	*No. 3*	*No. 4*	*No. 5*
$632.41	$ .87	$993.47	$ 74.28	$621.11
500.37	412.25	88.95	889.36	82.63
498.69	3.26	112.41	698.57	48.53
210.75	17.58	912.30	741.39	585.20
999.61	9.27	421.38	421.38	756.83
732.39	83.26	70.00	850.91	5.80
85.28	33.43	983.26	1.95	800.85
387.41	13.24	873.56	809.71	631.52
5.90	62.43	16.79	.27	372.65
431.99	741.04	536.79	114.48	.41
297.58	.53	997.83	745.62	503.10
594.58	71.26	5.93	212.53	253.11
4.00	663.98	553.29	5.94	768.31
860.48	2.19	21.57	253.11	736.68
33.19	75.46	196.40	52.33	30.25
668.88	83.26	388.79	5.11	176.89
28.96	441.78	16.58	607.21	665.48
441.37	168.59	870.19	32.67	20.96
18.79	964.20	85.49	855.49	233.21
90.54	18.89	700.00	47.60	76.57
777.48	464.30	175.46	843.21	954.23

No. 6	*No. 7*	*No. 8*	*No. 9*	*No. 10*
$511.36	$590.11	$632.24	$428.73	$762.33
7.53	664.37	18.70	738.59	647.56
562.46	962.46	357.89	625.72	381.48
379.14	47.26	852.70	293.54	835.69
447.26	325.36	615.80	931.79	274.85
325.36	64.38	114.67	534.67	946.72
4.38	971.80	213.81	784.76	476.39
971.80	511.17	731.25	638.45	618.84
641.17	536.28	485.26	264.57	556.76
129.85	536.11	3.85	628.24	326.35
7.68	29.85	311.20	837.42	534.79
768.31	997.68	768.50	375.38	658.34
480.79	768.31	752.36	629.55	928.65
.50	480.79	8.62	293.74	455.46
15.49	768.29	952.20	911.23	382.57
376.11	16.58	548.67	534.67	726.93
98.70	995.47	10.11	746.86	284.85
664.33	752.23	732.89	486.35	847.37
303.26	87.69	27.50	662.44	237.45
19.70	664.33	302.24	276.48	685.72
768.31	20.95	119.80	832.98	342.78

Multiplication

Multiplication is repeated addition, that is 5 x 5 is 25. The same result is obtained by adding 5 + 5 + 5 + 5 + 5. In machine multiplication, as in addition, use the large figures on the key-tops.

The full keyboard is used in multiplication. To multiply 44 by 3, place the index finger of the left hand on the 4-key in the tens column; the index finger of the right hand on the 4-key in the units column. Depress the keys 3 times — answer 132. To multiply 56 by 34, hold 56 with the index finger of each hand and depress 4 times; then move the fingers one column to the left and depress 3 times — answer 1904.

28 x 35	34 x 56	61 x 35	84 x 72	66 x 33
15 x 38	14 x 57	11 x 62	88 x 23	74 x 29
45 x 93	58 x 35	98 x 98	24 x 50	32 x 47
77 x 44	76 x 29	49 x 78	86 x 88	14 x 77
88 x 84	72 x 64	75 x 62	91 x 82	57 x 66

Multiplication Exercises

Three-figure Multiplier

3463 x 376 = 1,302,088.

Hold 3 with the first finger of left hand and 76 in reverse position with the first and second fingers of right hand.

Rule: Always hold the figures that are most conveniently reached by the first and second fingers of either hand.

Perform the following multiplications:

1.	4,542 x 467	9.	75,856 x 758	17.	10,892 x 762
2.	15,497 x 746	10.	763 x 326	18.	5,632 x 676
3.	9,346 x 763	11.	63,860 x 497	19.	8,956 x 326
4.	27,395 x 954	12.	10,432 x 856	20.	101,785 x 488
5.	15,678 x 756	13.	787 x 756	21.	4,542 x 354
6.	9,126 x 342	14.	42,976 x 657	22.	349 x 567
7.	40,987 x 467	15.	12,754 x 756	23.	8,349 x 234
8.	127,326 x 923	16.	39,654 x 854	24.	9,467 x 345

Multiplication of Decimals

Point off as many places from the right as there are decimals in both factors.

1.	89 lb.	tea	.99	26.	78 bu.	apples	$4.45
2.	125 lb.	cocoa	.68	27.	750 lb.	coffee	.88
3.	123 lb.	tea	.93	28.	129 lb.	coffee	.67
4.	98 lb.	candy	.68	29.	128 bbl.	flour	$9.45
5.	782 lb.	chocolate	$1.38	30.	98 boxes	farina	.29
6.	132 boxes	currants	.73	31.	49 lb.	raisins	.79
7.	129 bbl.	apples	$3.50	32.	87 boxes	salt	.19
8.	308 cans	corn	.38	33.	125 cans	peas	.34
9.	178 bu.	pears	$1.60	34.	156 bu.	apples	$3.72
10.	129 bu.	peaches	$1.75	35.	229 bu.	onions	$1.80
11.	49 bbl.	flour	$12.45	36.	78 bbl.	apples	$3.78
12.	73 lb.	coffee	.62	37.	793 bu.	potatoes	$2.25
13.	643 lb.	tapioca	.87	38.	29 lb.	tea	.72
14.	29 lb.	tea	.63	39.	240 doz.	eggs	.89
15.	925 lb.	sugar	.10	40.	123 lb.	cocoa	.69
16.	450 lb.	coffee	.99	41.	236 lb.	beef	.96
17.	95 gal.	vinegar	.77	42.	175 lb.	tea	.52
18.	573 lb.	raisins	.46	43.	753 bu.	wheat	$2.26
19.	82 gal.	molasses	.88	44.	98 pcs.	knives	$3.43
20.	723 pcs.	ornaments	$1.29	45.	543 pcs.	spoons	$1.29
21.	293 lb.	coffee	.82	46.	158 lb.	coffee	.99
22.	78 lb.	tea	.93	47.	123 lb.	tea	.83
23.	726 bu.	oats	$2.56	48.	5000 lb.	tea	.42
24.	823 doz.	candles	$1.39	49.	726 lb.	tea	.69
25.	78 cans	corn	.44	50.	128 cans	pears	.33

Large Decimal Multiplications

In multiplying large numbers containing decimals, it is advisable to strike from the left toward the right. Hold the multiplier with its left-hand figure on the left-hand column of the machine. Strike here as many times as is shown by the left-hand figure of your multiplicand, and then move one column to the right, etc. Point off as many answer dials from the extreme left side of the Comptometer register as the sum of the whole places in the multiplicand and multiplier.

1.	346.21 x 4.67	9.	11.463 x 37.8	17.	4627.1 x 846
2.	2.2635 x 12.3	10.	314.6 x 7.34	18.	17.264 x 434
3.	1508.2 x 3.10	11.	29.83 x 3.67	19.	263.35 x 33.5
4.	324.62 x 434	12.	174.90 x 2.89	20.	1.4362 x 77.6
5.	140.82 x .454	13.	126.76 x 7.43	21.	2673.2 x 9.12
6.	1674.4 x 223	14.	89.301 x 34.3	22.	1498.2 x 555
7.	3402.9 x 45.6	15.	.78463 x 89	23.	.64231 x 124
8.	.33021 x 2.34	16.	.45632 x 15.4	24.	1.2382 x 24.4

Three Factor Multiplication

When three numbers are to be multiplied such as, 57 bolts of 12 yards each at 1.25 per yard, proceed as follows: Multiply 57x12 on the right of the machine. Leave the result 684 in the answer dials. Since 684 is registered in the machine once it is necessary to multiply it only 124 times more. Therefore, hold 124 with the 4 over the left-hand figure (6) of the 684. Strike the number of times indicated, six; move to the right one column and strike the number of times indicated, eight. Move one more column to the right and strike four times. The answer is $855.00. In moving from left to right, the figure in the answer dial under the 4-key shows the number of times 124 should be struck.

Examples:

No. 1	*No. 3*	*No. 5*	*No. 7*
345 x 289 x .56	6452 x 344 x .66	645 x 4456 x .28	75 x 6489 x 567
No. 2	*No. 4*	*No. 6*	*No. 8*
789 x 88 x 5.46	33 x 875 x 4.58	389 x 673 x 438	372 x 44 x 8879

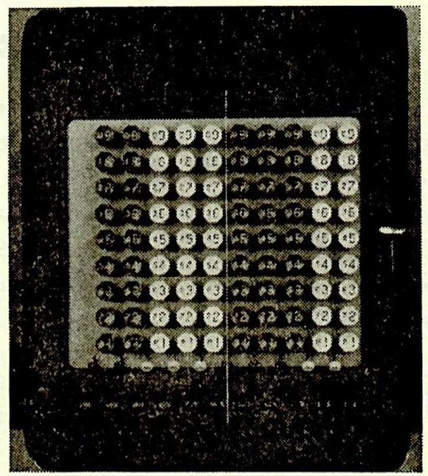
NOTE: Point off as many places from the right as the sum of the decimals in the three factors.

Permanent Decimal Multiplication

When factors contain changing decimals it will be easier and faster for the operator to use a method of working the multiplications over a fixed or Permanent Decimal Point. Between the fifth and sixth column of keys, directly over Decimal Pointer No. 5, is the position generally known as the Permanent Decimal Point. See illustration.

Usually the price factor is held on the keyboard — dollars to the left of the Permanent Decimal Point, and cents to the right of the Permanent Decimal Point. With the price factor in this position strike it in as many times as the unit figure*of the quantity indicates. Move price factor one column to the left for each additional whole number in the quantity, and one column to the right for each column of decimals in the quantity.

**The unit figure is always the figure to the left of the decimal point.*



Permanent Decimal Point—this is located between the fifth and sixth column of keys, directly over Decimal Pointer No. 5

Example:

345 lbs. @ $.65 per lb. Answer $224.25

Hold price factor $.65 so that the 6-key is held in the fifth column and the 5-key in the fourth column. Strike the price factor five times for the UNIT figure of quantity. Move price factor one column to the left and strike it four times for the TENS figure of quantity. Move price factor one column to the left and strike it three times for the HUNDREDS figure of the quantity — $224.25 now appears in the answer dials correctly pointed off.

Work the following problems over the Permanent Decimal Point, following the explanation in the previous paragraph.

Examples:

1. 307 hrs. @ $ .45 per hr. $138.15
2. 65 doz. @ .22 per doz. 14.30
3. 45 tons @ 7.75 per ton. 348.75
4. 15 days @ 4.50 per day 67.50
5. 241 bolts @ .67 each 161.47

Accumulative Multiplication Using Permanent Decimal

A rapid and accurate method of checking and proving original multiplications is by accumulation. This method is very effective in proving payrolls, cost sheets, material requisitions, inventory sheets, invoices, etc.; in fact it should be used wherever it is desired to total the products of several multiplications. To obtain the best results from accumulative multiplication, it should be performed over the fixed or Permanent Decimal Point. This Permanent Decimal Point is between the fifth and sixth columns, or as previously explained, directly over Decimal Pointer No. 5.

It is easy to remember that the sixth (ivory) column of keys is UNITS of DOLLARS; the fifth is TENS of CENTS and the fourth column is UNITS of CENTS.

Example:

4¾ (4.75)	yards	@	$ 1.25
16½ (16.5)	yards	@	.34½
148¼ (148.25)	yards	@	.06¼
Accumulated Product			$20.90

Hold the price $1.25 with the 1 in the sixth (ivory) column, the 2 in the fifth and the 5 in the fourth column. Multiply toward the right; strike four times, seven times, and five times. The answer dials show $5.9375. LEAVE THIS IN THE MACHINE.

Multiply the second item in a similar manner holding .345 with the 3 in the fifth, 4 in the fourth, and 5 in the third columns, respectively. As the yardage commences in the TENS COLUMN, move the price position one column to the left before commencing the multiplication. Strike from left to right one, six, and five times, respectively, and the accumulation in answer dials now shows $11.63. LEAVE THIS IN THE MACHINE.

For the third item hold .0625 with the 6 in the fourth column. As the yardage commences in the HUNDREDS COLUMN, move the price position two columns to the left before starting the multiplication. Strike in the keys one, four, eight, two, and five times in their respective columns. The accumulated answer of $20.895 now appears in answer dials. If at any time fingers drop off the keyboard on THE RIGHT-HAND SIDE, continue to strike with fingers that still remain on keyboard.

By the use of this method positive proof is obtained on:

(a) EACH INDIVIDUAL EXTENSION
(b) POSITION OF DECIMAL POINT
(c) ADDITION OF ITEMS

Always take the *price position* on keyboard as previously explained — if the quantity has more than one whole number move the price position (before multiplying) one column to the left on the keyboard for each additional whole number in the quantity. For instance, move one column to the left for 48¾, two columns for 236¾, etc.

Example No. 1

1⅛ (1.125)	yards	@	$ .48
12¼ (12.25)	yards	@	.64¾
67	yards	@	.50
6⅜ (6.375)	yards	@	1.23
Accumulated total			$49.81

Example No. 2

16⅔ (16.667)	yards	@	$ .34½
172	yards	@	.06½
25¼ (25.25)	yards	@	1.89
256	yards	@	.19
Accumulated total			$113.29

ACCUMULATION

1.	48	at $0.56	6.	48	at 6.50
2.	48½	at .36	7.	56	at .49
3.	98½	at .45¼	8.	25	at .48
4.	48¼	at .36½	9.	36	at .54
5.	25¾	at .98	10.	65	at .48

Answer.....

Make the following extensions and find the total. Prove by means of accumulation.

Quantity	Description		Price	Extension		Total	
11 lb.	Pecans	@	$2.55				
55 lb.	Sugar	@	.09½				
25 lb.	Crackers	@	.28½				
14 lb.	Cocoa	@	.63				
25 lb.	Coffee	@	.89				
55 lb.	Tea	@	.95				
89 lb.	Candy	@	.44½				
15 lb.	Mustard	@	.68				
24 lb.	Tapioca	@	.37¼				
66 lb.	Raisins	@	.44				

Accumulation

Extend and prove by accumulation:

Quantity	Description		Price	Extension		Total	
66 Pr.	Boys' Hose	@	$ .25				
83 Pr.	Silk Hose	@	.79				
12 Dz.	Linen Handkerchiefs	@	2.76				
15 Dz.	Linen Handkerchiefs	@	3.30				
12 Bolts	Lace	@	2.10				
24 Yd.	Silk	@	1.69				
75 Yd.	Silk	@	2.21				
14 Yd.	Velvet	@	2.19				
24 Yd.	Velvet	@	2.75				
80 Pc.	Ribbon	@	1.10				

Accumulate each of the following:

2.	2,746 lb. Meat at $12.50 per Cwt.	6. 793 lbs. at $.08½ lb.
	4,264 lb. Meat at 35.00 per Cwt.	13.4 lbs. at .11½ lb.
	434 lb. Meat at 18.00 per Cwt.	746 lbs. at .16½ lb.
	546 lb. Meat at 8.85 per Cwt.	459 lbs. at .18 lb.
	9,964 lb. Meat at 7.22 per Cwt.	608 lbs. at .09¼ lb.
3.	2,970 ft. Lumber at $14.50 per M	7. 1248 lbs. at $.07½ lb.
	2,322 ft. Lumber at 24.00 per M	792 lbs. at .12¼ lb.
	12,642 ft. Lumber at 43.35 per M	1344 lbs. at .16½ lb.
	5,642 ft. Lumber at 18.80 per M	695 lbs. at .15¾ lb.
	646 ft. Lumber at 55.00 per M	78 lbs. at .16 lb.
4.	2,936 lb. at $14.50 per C	8. 145½ at $ .35½ per C.
	7,896 lb. at 9.50 per M	2108 at .55½ per M.
	1,741 lb. at 62.40 per M	46¾ at 3.75 per C.
	5,765 lb. at 9.23 per Cwt.	155½ at 7.75 per C.
	3,625 lb. at 10.50 per Cwt.	4484 at 5.75½ per M.
5.	7,522 at $9.75 per C	9. 16½ yd. at $1.75 a yd.
	345 at 6.91 per M	205 yd. at .39 a yd.
	2,345 at 1.50 per C	12½ yd. at .09¾ a yd.
	3,392 at 3.65 per M	77¼ yd. at 1.05½ a yd.
	4,776 at 3.50 per Cwt.	7¾ yd. at .07¾ a yd.

Periodic Inventory

A merchant or dealer must know at all times the value of the stock on hand. Sometimes the inventory shows the cost of the goods as well as the selling price and in this case the cost and selling prices are extended.

Audit the following inventory and foot for totals.

Article	Quantity	Unit	Cost	Extension	Selling Price	Extension
Button Dies	59	ea.	$ .40		$ .59	
Alundum Wheels	5	ea.	1.24		1.45	
1¾" Standard Steel	12	lb.	.16		.25	
⅞" Standard Steel	26	lb.	.16		.25	
Misc. Bronze	81	lb.	.55		.60	
Hexagon Head Screws	163	C	9.30		11.50	
Hexagon Head Screws	172	C	13.45		15.00	
Hexagon Head Screws	123	C	16.70		22.80	
Cotter Pins	10 Doz.	M	.47		.59	
Cotter Pins	34 Doz.	M	.99		1.24	
Thumb Screws	25 Doz.	M	1.30		1.50	
Thumb Screws	18 Doz.	C	1.30		1.65	
Thumb Screws	11 Doz.	C	1.60		1.95	
Thumb Screws	9½ Doz.	C	1.45		1.90	
Washers	5¾	lb.	.074		.12	
Washers	4½	lb.	.075		.13	
Washers	10½	lb.	.08		.14	
Belting (Leather)	460	ft.	.30		.45	
Belting (Leather)	665	ft.	.132		.20	
Belting (Raw Hide)	92	ft.	.27		.38	
Castor Oil (Red Seal)	1½	gal.	1.65		2.00	
Turpentine	5½	gal.	.70		1.10	
Sheet Rubber Packing	1¼	yd.	1.25		1.65	
Canvas for Steam Tables	3	yd.	1.13		1.62	
Hydrated Lime (100 lbs. to bag)	450	bag	.40		.65	

Subtraction

Subtraction is the process of finding the difference between two numbers. This is performed on the Comptometer by using the small figures on the key-tops and the subtraction "cut-off."

Example: 98 — 75 = 23.

Put 98 in the right of keyboard. Hold back "cut-off" at the left of the figure 9; depress a small 7 in the second column and a small 4 (5 less 1) in the first column — answer 23. To prove, add 75 to 23 in machine. Answer 98 agrees with amount started with.

Example: 845 — 702 = 143.

Put 845 in the right of keyboard. Hold back "cut-off" at the left of the figure 8; depress a small 7 in the third column, a small cipher in the second column, and a small 1 (2 less 1) in the first column — answer 143. To prove, add 702 to 143 in machine. Answer 845 agrees with amount started with.

Example: $28.64 — $9.62 = $19.02.

Put 28.64 in right of keyboard. Hold back "cut-off" at left of figure 2. Borrow from fourth column by depressing cipher key; as there are no small 9 figures, ignore the 9 in the third column, depress small 6 in the second column and a small 1 (2 less 1) in the first column — answer $19.02. To prove, add $9.62 to $19.02 in machine. Answer $28.64 agrees with amount started with.

The processes to follow in subtraction:

1. Put larger amount in the Comptometer.
2. Hold back "cut-off" at the left of an amount in the register equal to or larger than the amount to be subtracted.
3. Holding back the "cut-off" depress the amount to be subtracted in small figures, less one.
4. If necessary to borrow, hold back the "cut-off" at the left of the column or columns from which you borrow. Depress the small cipher key in such column or columns.

NOTE: Cipher keys are used in the amount to be subtracted if they come between figures of value, but are ignored if at the end of a number. The 9's are ignored unless they come at the end of a number when one less than nine (8) is depressed.

NOTE: When using the Models M, 992 and 3D11 Comptometers do not hold the subtraction button after setting it for a subtraction. It returns to normal when the carry has been foiled.

The apostrophe in the following problems indicates where the "cut-off" is to be held back.

1. '4.36 Add large figures
   1.25 Small figures 124
   3.11

2. '8.34 Add large figures
   .68 Small figures 067
   7.66

3. '21.43 Add large figures
   6.42 Small figures 0641
   15.01

4. 1'70.36 Add large figures
   .85 Small figures 0084
   169.51

5. '65.23 Add large figures
   31.00 Small figures 30**
   34.23

6. '6.42 Add large figures
   1.93 Small figures 1*2
   4.49

7. '15.60 Add large figures
   8.83 Small figures 0882
   6.77

8. '48.50 Add large figures
   9.60 Small figures 0*5*
   38.90

*Used to designate columns in which no keys are depressed.

Department	Sales	Cost of Goods Sold	Gross Profit		Expenses	Net Profit or Loss	
1.	$843.29	$500.20			$22.40		
2.	546.25	448.25			44.00		
3.	84.26	79.25			8.25		
4.	129.54	100.20			30.15		
5.	643.29	329.64			50.29		
6.	546.33	442.25			36.25		
7.	92.20	75.80			20.20		
8.	305.00	280.25			35.25		
9.	425.25	592.15			12.15		
10.	92.00	60.25			5.65		
11.	156.49	101.30			14.65		
12.	293.25	128.62			22.56		
13.	78.46	80.20			6.60		
14.	225.40	240.25			15.75		
15.	190.55	98.25			20.40		
16.	135.35	101.20			15.10		
17.	200.05	150.25			8.40		
18.	73.20	98.20			6.25		
19.	840.25	603.25			30.25		
20.	745.00	430.19			29.75		

The above tabulation is the record of the daily sales in a large department store. Subtract the cost of the goods from the sales to get the gross profit. Then subtract the expenses from the gross profit or loss to find the net profit or loss.

Touch Subtraction

Touch Subtraction is as easy and simple as Touch Addition. One merely mentally figures the complement of each number to be subtracted and adds that amount into the Comptometer.

Illustration: 545.67 − 93.30 = 452.37

Regular Subtraction

√ 545.67 (Use large figures)
0 3.2 (Use small figures)
452.37

One less on last figure of value.

Touch Subtraction

√ 545.67 (Use large figures)
906.7 (Use large figures)
452.37

Add 9's in all columns from left of minuend to first number to be subtracted in every item.

To find complement, mentally subtract each number from 9 except the last; subtract that from 10.

The added feature of having an automatic recording of the number of subtractions made may be accomplished by not setting the subtraction button.

Touch Subtraction

Earn'gs	OAB	TAX	INS.	DUES	Net Amount To be Paid
52.70	.53	7.20	1.00	4.13	
55.61	.56	4.00	1.55	.75	
50.25	.50	1.30	1.16	2.25	
61.90	.62	10.70	1.25	.98	
63.89	.64	3.50	2.98	3.50	
56.10	.56	.50	1.62	6.76	
57.34	.57	8.10	1.64	.79	
64.25	.64	11.50	2.37	1.33	
70.14	.70	12.60	2.37	.50	
53.98	.54	5.50	1.25	.35	
63.25	.63	3.50	2.55	1.19	
51.16	.51	5.20	1.75	.23	
72.33	.72	3.30	3.00	.67	
60.18	.60	1.30	1.86	5.20	
50.12	.50	2.80	1.10	4.20	
45.90	.46	4.20	.95	2.00	
49.98	.50	1.50	1.20	.98	
60.11	.60	6.00	2.25	1.25	
52.91	.53	7.20	1.70	4.11	
58.50	.59	3.40	1.80	2.30	

PAYROLL SHEET

Application of Permanent Decimal Multiplication and Subtraction

CLOCK NO.	NAME	HOURLY RATE		1	2	3	4	5	HOURS	TOTAL EARNINGS	DEDUCTIONS: PENSION FUND	DEDUCTIONS: PAYROLL ADVANCES	DEDUCTIONS: SUPPLIES	DEDUCTIONS: TOTAL DEDUCTIONS	NET AMOUNT TO BE PAID
501	Ed. Franklin	57½	HR.	8	8	8	8	8			.18		2.75		
			AMT.												
502	J. Winters	52	HR.	8	6	8	8	8			.15	5.00			
			AMT.												
503	Geo. Conway	50	HR.	1	8	8	5	4			.20				
			AMT.												
504	F. Gray	51½	HR.	8	8	8	8	8			.17		2.15		
			AMT.												
505	H. Baker	45	HR.	8	8	8	8	8			.25		1.35		
			AMT.												
506	M. Lange	48½	HR.	4	4	4	4	4			.15	2.00			
			AMT.												
507	R. Fields	60	HR.	4	4	8	8	8			.16		.15		
			AMT.												
508	A. Harper	55	HR.	8	8	8	8	8			.25		.63		
			AMT.												
509	B. Busse	48	HR.	8	1	1	8	8			.15		.72		
			AMT.												
510	E. Smith	62½	HR.	8	8	8	8	8			.20				
			AMT.												
511	V. Becker	47½	HR.	8	8	8	8	4			.22	1.50			
			AMT.												
512	L. Andre	57½	HR.	4	8	8	8	6			.16		5.46		
			AMT.												
								TOTALS							

Division

Division is the process of finding the number of times one number is contained in another.

Although division is not used as frequently in the average office as addition and multiplication, it is, however, very important and used extensively in statistics of all kinds.

The machine method of division is more simple on the Comptometer than the mental or written process for it consists merely of a series of subtractions and the quotient, or answer figure, is a record of the number of subtractions made.

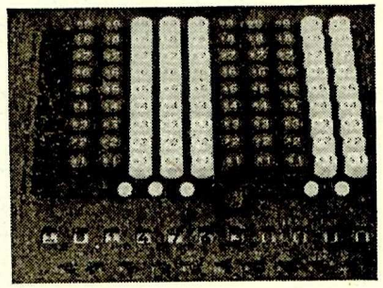
Division on the Comptometer is as simple as any other operation. The underlying principle of division is explained in the following example:

Example: 1477.63÷133

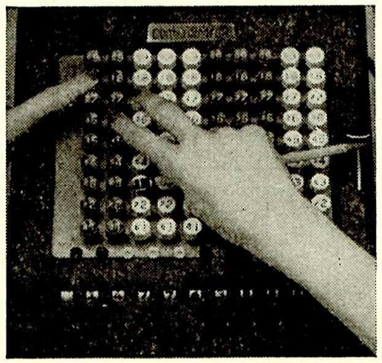
Place 147763 (the dividend) into the left side of the Comptometer using large figures.

Pull down the decimal pointer on the machine in the same position as it appears in the written dividend. (1477|63). The divisor (133) contains three whole
DIVIDEND DECIMAL

numbers; that is, it has three figures to the left of its decimal point. Move your finger to the left of the dividend decimal position three places. Pull down the pointer in this position. You have now established the decimal point for your answer. (1|47763).
ANSWER DECIMAL



Remainder is 014



Hold 133 (the divisor) using small figures less one (132) directly over 147. Depress these divisor keys until the amount in the register dials at the base of the columns in which you are holding the divisor is less than 133.

In this example, the remainder is 014, which is less than your divisor, 133.

Move your divisor position, held on the keyboard, one place to the right. You are now holding your divisor over 147 in the register dials.

Depress 132 (divisor figures). Remainder is 014 which is less than your divisor 133.

Move your divisor position, held on keyboard, one place to the right. You are now holding your divisor over 146 in the register dials.

Depress 132 (divisor figures). The remainder is 013 which is less than your divisor, 133.

Move your divisor position, held on keyboard, one place to the right. You are now holding your divisor over 133 in the register dials.

Depress 132 (divisor figures). The remainder is 000.

Copy your answer—11.11.

Example: 8153.40÷254

Place 815340 (the dividend) into the left side of the Comptometer using large-numbered keys.

Locate your dividend decimal position: 8153|40.
DIVIDEND DECIMAL

Establish your answer decimal point position: 8|15340.
ANSWER DECIMAL

Hold your divisor 254 (using small-figured keys 253) over 815 in the register dials.

Depress 253 (divisor figures) until the remainder in the register dials is less than the divisor, 254. Remainder is 053.

Move your divisor position, held on keyboard, one place to the right over 533 in the register dials.

Repeat depressing and moving until the entire problem is completed.

Answer: 32.10.

Practice Division Problems

4775.38÷226=	21.13
2326.59÷189=	12.31
6265.45÷145=	43.21
95061.75÷175=	543.21
978879.74÷487=	2010.02

When we have a problem in division such as:

194.25÷875

Put 19425 (the dividend) into the Comptometer.

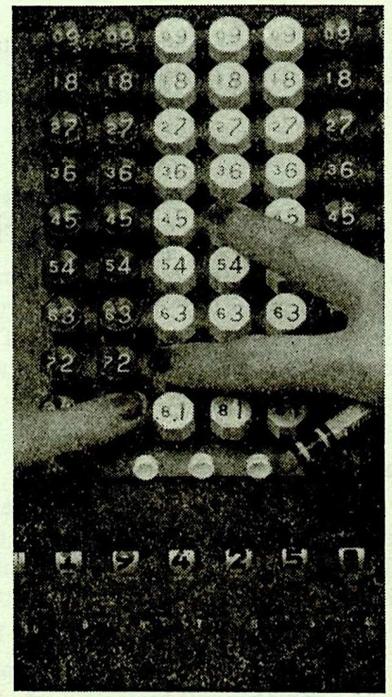
Establish dividend decimal point.

Point off three places to the left of the dividend decimal position to establish the answer decimal position.

Hold 875 (divisor figures), using small figures 874, over 194. 194 is less than divisor 875.

Move your divisor position, held on keyboard, one place to the right. You are now holding your divisor over 1942 in the register dials.

This is the only difference in the operation of division you have learned so far.



Hold the Divisor over 1942 in the Register Dials

Depress 874 (divisor figures) as many times as shown by the figure in the register dial at the left of the columns in which you are holding the divisor.

The figure 1 appears to the left of these columns.

Depress 874 (divisor figures) one time. The figure 1 changed to 2.

Depress 874 one more time to equal the figure 2. 192 (remainder figure) is less than 875.

Move your divisor position, held on keyboard, one place to the right.

The number in the register dial at the left of the columns in which you are holding the divisor is 1.

Depress 874 (divisor figures) one time. The figure 1 changed to 2.

Depress 874 (divisor figures) one more time to equal the figure 2. 175 (remainder figure) is less than 875.

Move your divisor position, held on keyboard, one place to the right.

The number in the register dial at the left of the columns in which you are holding the divisor is 1.

Depress 874 (divisor figures) one time.

The number 1 in the register dial at the left of the columns in which you are holding the divisor did not change.

The remainder is 875. Depress 874 (divisor figures) one time.

Answer is .222.

For all practical purposes it is unnecessary to carry division beyond the fourth figure to the right of the decimal point.

Pointing off in Division

Pointing off on the Comptometer in division is very simple and accurate. Turn down the decimal pointer in the register to agree with the decimal point in the dividend. To establish the ANSWER DECIMAL POINT turn down the pointer as many places to the left of the dividend deicmal pointer as there are figures to the left of the decimal point in the divisor. See Illustration.

Example: 134.5 ÷ 25 = 5.38

Put the dividend 134.5 into the left side of keyboard. Pull down the decimal pointer between the 4 and 5 to correspond to the decimal point appearing in the dividend. As 25 is a whole number with two figures (2 and 5) we turn down the decimal pointer to the left of the dividend decimal point two places between the 1 and 3. See illustration. This simple method of establishing an accurate decimal position in the answer is found only on the Comptometer.

Drill carefully on the following problems and check your answers with those shown here.

1. 41.778 ÷ 45 = .9284
2. 16.7772 ÷ 44 = .3813
3. 297.364 ÷ 34 = 8.746
4. 2377.2 ÷ 56 = 42.45
5. 1307.68 ÷ 22 = 59.44
6. 89089 ÷ 89 = 1001

If the divisor is a decimal without preceding ciphers the answer pointer is the same as the dividend pointer; but if the divisor has preceding ciphers like .0025 the answer pointer is as many places to the right of the dividend pointer as there are ciphers immediately to the right of the decimal point in the divisor. See illustration.

As there are no small 9 figured keys, leave blank any column which contains 9; except where 9 is the right-hand figure of value, then the small 8 key is used.

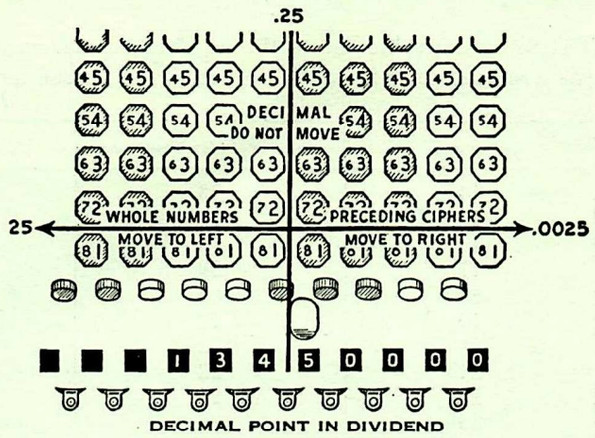


Illustration Showing Direction to Move Decimal Point in Division

The small cipher keys should be depressed the same as any other figure when they appear between figures of value, as in 704, but should be disregarded if they are at the right of the amount, as in 7500. In the latter case, the divisor 7500 would be held as 75 less one (74).

Division Exercises

1. Proof of Division. Verify by multiplying the quotient by the divisor. Always point off before dividing.

2. Proof of Division:—

Add the dividend into the Comptometer and find the answer decimal point. Hold the divisor keys in exactly the same position as when starting the division and multiply the answer previously obtained toward the right.

If the answer re-appears in the register, the division has been done correctly.

This method is to be preferred against the ordinary proving by multiplication whenever the accuracy of all the decimal places has to be determined.

1. 828.96 ÷ 2.4
2. 26686 ÷ 55
3. 272.328 ÷ 84
4. 1958.4 ÷ 51
5. 65.646 ÷ 6.3
6. 1221 ÷ 22
7. 5244 ÷ 12
8. 11154 ÷ 26
9. 487.9 ÷ 34
10. 7731 ÷ .45

NOTE: When 9's occur in the divisor they are disregarded. Hold the small cipher in divisor when between figures of value.

1. 2468 ÷ 65.4
2. 86.4 ÷ 3.24
3. .9865 ÷ .256
4. 8643 ÷ 987
5. .76435 ÷ 642
6. 8643.5 ÷ 9.42
7. 643.281 ÷ .304
8. 86.435 ÷ .864
9. 643.52 ÷ 983
10. .8643 ÷ .765

The following table shows the number of men employed and the total weekly wages. Find the average wage for each department and the average wage for the twelve departments.

Department	Number of Men Employed	Total Weekly Wage	Average Wage
14	23	$805	
15	18	657	
16	40	1880	
17	39	1638	
18	62	2418	
19	24	1080	
20	12	600	
21	22	935	
22	15	712.50	
23	26	1118	
24	34	1581	
25	29	1058.50	

The Jones Department Store wishes to know the total weekly sales for each department and the average sales. Find the total daily sales and the average.

DEPARTMENT STORE WEEKLY SALES REPORT

Dept.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Total	Average Sales
A.	$98.25	$101.20	$75.80	$64.25	$88.45	$125.25		
B.	40.40	20.45	84.25	75.25	60.00	150.24		
C.	120.25	230.40	195.45	98.20	70.05	202.45		
D.	240.66	104.75	202.20	101.45	98.60	340.40		
E.	78.34	55.74	22.45	78.45	38.25	98.20		
F.	343.25	404.20	324.90	206.40	122.22	504.25		
G.	84.96	78.25	98.65	93.75	60.65	101.10		
H.	98.34	82.34	88.70	78.64	84.20	97.11		
I.	224.68	102.46	202.45	198.75	109.10	300.12		
J.	55.94	20.98	34.35	20.24	15.64	64.25		
K.	400.20	502.65	398.24	205.98	98.75	570.22		
L.	525.64	498.30	478.40	347.75	202.40	525.36		

Division Short-Cut

In practical every day work, division is used a great deal in the figuring of averages and percentages. For this reason it is unnecessary in many cases to obtain more than three or four decimal places in the answer.

Example: Sales $48,672,392
Profit 2,782,679
Find per cent of profit to sales

$$\frac{\$\ 2,782,679}{\$48,672,392} = .0572 \text{ or } 5.72\%$$

Dividing four figures of the dividend (2782) by four figures of the divisor (4867 *minus* 1) will provide an answer sufficient for practical purposes. A safe rule to follow is to hold *one more figure* of the *divisor* than figures desired in the answer.

The carrying out of decimals beyond the actual number of places required is a needless waste of time and energy.

Reciprocal Division

The use of reciprocal divison in cost, payroll, and statistical work will be very helpful to the operator. The simplicity of this method of division, in addition to its time-saving feature, makes its use very desirable. This method is nothing more than converting division into a multiplication process.

Multiplying any dividend by the reciprocal of its divisor produces the same answer as that obtained by actual division. To obtain the reciprocal of any number, merely divide that number into the figure 1, disregarding preceding ciphers, or use Reciprocal Card No. 9 (See page 37) to find the reciprocal of number.

The easiest way to do reciprocal division is to hold the dividend over Permanent Decimal Pointer No. 5, multiplying it from left to right by the reciprocal of the divisor. As the reciprocal has no preceding ciphers nor is it a whole number there is no need to move the dividend from the permanent decimal position in order to multiply the left-hand figure of the reciprocal. Always point off to the left of the Permanent Decimal Point as many places as there are whole numbers in the divisor. The decimal point and preceding ciphers in the reciprocal are entirely disregarded if the problem is worked over the Permanent Decimal Point.

755 pieces cost $66.06. What is the average cost per piece?
Answer, $0.0875.
$66.06 ÷ 755 is the same as $66.06 x 13245 (reciprocal of 755).

Hold the dividend $66.06 over Permanent Decimal Pointer No. 5 and multiply it by the reciprocal of 755. From left to right strike in the dividend one, three, two, four, and five times respectively. As the divisor (755) contains three whole numbers, it requires pointing off to the left of Permanent Decimal Pointer No. 5 three places. The answer dial now shows $.0875.

The weekly sales of five novelty salesmen for the week ending November tenth are recorded below. Find the per cent each man's sales is of the total weekly sales.

		Div. Method	Multiplication Method
J. Jones	$664	664 ÷ 2955 = 22.47%	1 ÷ 2955 = 338409, recip.
			664 x 338409 = 22.47%
A. White	783	783 ÷ 2955 = 26.50%	783 x 338409 = 26.50%
F. Gear	592	592 ÷ 2955 = 20.03%	592 x 338409 = 20.03%
G. Frey	444	444 ÷ 2955 = 15.03%	444 x 338409 = 15.03%
L. Smiley	472	472 ÷ 2955 = 15.97%	472 x 338409 = 15.97%
	$2955	Total 100.00	Total 100.00

Using the reciprocal method of division, find the percentage each amount is to the total. Carry each decimal one or two figures beyond the number of places required in the answer. This enables an adjustment in balancing to 100%.

	%		%		%
1. $45.75		2. $41.75		3. $300	
98.00		7.77		475	
64.50		69.00		960	
112.75		78.80		834	
89.30		9.60		962	
	100.00		100.00		100.00

	%		%		%
4. $24.75		5. $21.05		6. $ 76.43	
3.33		47.47		60.01	
2.22		7.21		9.00	
7.75		555.00		143.60	
44.34		32.41		18.96	
	100.00		100.00		100.00

Application of Courtesy Course of Instruction

The Courtesy Course of Instruction has successfully met all requirements in giving you that fundamental knowledge so necessary to you for Comptometer operation. The final step in this course is to help you apply your knowledge of Comptometer operation to the very work and forms from your office.

Bring samples of your daily work with you to the next two sessions so that we may give individual help in the practical application of the Comptometer Course of Instruction.

COMPTOMETER RECIPROCAL TABLE

	100		200		300		400		500		600		700		800		900	
	1	1000.000	01	9.90099	01	4.97512	01	3.32226	01	2.49377	01	1.99601	01	1.66389	01	1.42653	01	1.24844	01	1.10988
	2	500.000	02	9.80392	02	4.95050	02	3.31126	02	2.48756	02	1.99203	02	1.66113	02	1.42450	02	1.24688	02	1.10865
	3	333.333	03	9.70874	03	4.92611	03	3.30033	03	2.48139	03	1.98807	03	1.65837	03	1.42248	03	1.24533	03	1.10742
	4	250.000	04	9.61538	04	4.90196	04	3.28947	04	2.47525	04	1.98413	04	1.65563	04	1.42045	04	1.24378	04	1.10619
	5	200.000	05	9.52381	05	4.87805	05	3.27869	05	2.46914	05	1.98020	05	1.65289	05	1.41844	05	1.24224	05	1.10497
	6	166.667	06	9.43396	06	4.85437	06	3.26797	06	2.46305	06	1.97628	06	1.65017	06	1.41643	06	1.24069	06	1.10375
	7	142.857	07	9.34579	07	4.83092	07	3.25733	07	2.45700	07	1.97239	07	1.64745	07	1.41443	07	1.23916	07	1.10254
	8	125.000	08	9.25926	08	4.80769	08	3.24675	08	2.45098	08	1.96850	08	1.64474	08	1.41243	08	1.23762	08	1.10132
	9	111.111	09	9.17431	09	4.78469	09	3.23625	09	2.44499	09	1.96464	09	1.64204	09	1.41044	09	1.23609	09	1.10011
10	10	100.000	110	9.09091	210	4.76190	310	3.22581	410	2.43902	510	1.96078	610	1.63934	710	1.40845	810	1.23457	910	1.09890
	11	90.9091	11	9.00901	11	4.73934	11	3.21543	11	2.43309	11	1.95695	11	1.63666	11	1.40647	11	1.23305	11	1.09769
	12	83.3333	12	8.92857	12	4.71698	12	3.20513	12	2.42718	12	1.95312	12	1.63399	12	1.40449	12	1.23153	12	1.09649
	13	76.9231	13	8.84956	13	4.69484	13	3.19489	13	2.42131	13	1.94932	13	1.63132	13	1.40252	13	1.23001	13	1.09529
	14	71.4286	14	8.77193	14	4.67290	14	3.18471	14	2.41546	14	1.94553	14	1.62866	14	1.40056	14	1.22850	14	1.09409
	15	66.6667	15	8.69565	15	4.65116	15	3.17460	15	2.40964	15	1.94175	15	1.62602	15	1.39860	15	1.22699	15	1.09290
	16	62.5000	16	8.62069	16	4.62963	16	3.16456	16	2.40385	16	1.93798	16	1.62338	16	1.39665	16	1.22549	16	1.09170
	17	58.8235	17	8.54701	17	4.60829	17	3.15457	17	2.39808	17	1.93424	17	1.62075	17	1.39470	17	1.22399	17	1.09051
	18	55.5556	18	8.47458	18	4.58716	18	3.14465	18	2.39234	18	1.93050	18	1.61812	18	1.39276	18	1.22249	18	1.08932
	19	52.6316	19	8.40336	19	4.56621	19	3.13480	19	2.38663	19	1.92678	19	1.61551	19	1.39082	19	1.22100	19	1.08814
20	20	50.0000	120	8.33333	220	4.54545	320	3.12500	420	2.38095	520	1.92308	620	1.61290	720	1.38889	820	1.21951	920	1.08696
	21	47.6190	21	8.26446	21	4.52489	21	3.11526	21	2.37530	21	1.91939	21	1.61031	21	1.38696	21	1.21803	21	1.08578
	22	45.4545	22	8.19672	22	4.50450	22	3.10559	22	2.36967	22	1.91571	22	1.60772	22	1.38504	22	1.21655	22	1.08460
	23	43.4783	23	8.13008	23	4.48431	23	3.09598	23	2.36407	23	1.91205	23	1.60514	23	1.38313	23	1.21507	23	1.08342
	24	41.6667	24	8.06452	24	4.46429	24	3.08642	24	2.35849	24	1.90840	24	1.60256	24	1.38122	24	1.21359	24	1.08225
	25	40.0000	25	8.00000	25	4.44444	25	3.07692	25	2.35294	25	1.90476	25	1.60000	25	1.37931	25	1.21212	25	1.08108
	26	38.4615	26	7.93651	26	4.42478	26	3.06748	26	2.34742	26	1.90114	26	1.59744	26	1.37741	26	1.21065	26	1.07991
	27	37.0370	27	7.87402	27	4.40529	27	3.05810	27	2.34192	27	1.89753	27	1.59490	27	1.37552	27	1.20919	27	1.07875
	28	35.7143	28	7.81250	28	4.38596	28	3.04878	28	2.33645	28	1.89394	28	1.59236	28	1.37363	28	1.20773	28	1.07759
	29	34.4828	29	7.75194	29	4.36681	29	3.03951	29	2.33100	29	1.89036	29	1.58983	29	1.37174	29	1.20627	29	1.07643
30	30	33.3333	130	7.69231	230	4.34783	330	3.03030	430	2.32558	530	1.88679	630	1.58730	730	1.36986	830	1.20482	930	1.07527
	31	32.2581	31	7.63359	31	4.32900	31	3.02115	31	2.32019	31	1.88324	31	1.58479	31	1.36799	31	1.20337	31	1.07411
	32	31.2500	32	7.57576	32	4.31034	32	3.01205	32	2.31481	32	1.87970	32	1.58228	32	1.36612	32	1.20192	32	1.07296
	33	30.3030	33	7.51880	33	4.29185	33	3.00300	33	2.30947	33	1.87617	33	1.57978	33	1.36426	33	1.20048	33	1.07181
	34	29.4118	34	7.46269	34	4.27350	34	2.99401	34	2.30415	34	1.87266	34	1.57729	34	1.36240	34	1.19904	34	1.07066
	35	28.5714	35	7.40741	35	4.25532	35	2.98507	35	2.29885	35	1.86916	35	1.57480	35	1.36054	35	1.19760	35	1.06952
	36	27.7778	36	7.35294	36	4.23729	36	2.97619	36	2.29358	36	1.86567	36	1.57233	36	1.35870	36	1.19617	36	1.06838
	37	27.0270	37	7.29927	37	4.21941	37	2.96736	37	2.28833	37	1.86220	37	1.56986	37	1.35685	37	1.19474	37	1.06724
	38	26.3158	38	7.24638	38	4.20168	38	2.95858	38	2.28311	38	1.85874	38	1.56740	38	1.35501	38	1.19332	38	1.06610
	39	25.6410	39	7.19424	39	4.18410	39	2.94985	39	2.27790	39	1.85529	39	1.56495	39	1.35318	39	1.19190	39	1.06496
40	40	25.0000	140	7.14286	240	4.16667	340	2.94118	440	2.27273	540	1.85185	640	1.56250	740	1.35135	840	1.19048	940	1.06383
	41	24.3902	41	7.09220	41	4.14938	41	2.93255	41	2.26757	41	1.84843	41	1.56006	41	1.34953	41	1.18906	41	1.06270
	42	23.8095	43	7.04225	42	4.13223	42	2.92398	42	2.26244	42	1.84502	42	1.55763	42	1.34771	42	1.18765	42	1.06157
	43	23.2558	43	6.99301	43	4.11523	43	2.91545	43	2.25734	43	1.84162	43	1.55521	43	1.34590	43	1.18624	43	1.06045
	44	22.7273	44	6.94444	44	4.09836	44	2.90698	44	2.25225	44	1.83824	44	1.55280	44	1.34409	44	1.18483	44	1.05932
	45	22.2222	45	6.89655	45	4.08163	45	2.89855	45	2.24719	45	1.83486	45	1.55039	45	1.34228	45	1.18343	45	1.05820
	46	21.7391	46	6.84932	46	4.06504	46	2.89017	46	2.24215	46	1.83150	46	1.54799	46	1.34048	46	1.18203	46	1.05708
	47	21.2766	47	6.80272	47	4.04858	47	2.88184	47	2.23714	47	1.82815	47	1.54560	47	1.33869	47	1.18064	47	1.05597
	48	20.8333	48	6.75676	48	4.03226	48	2.87356	48	2.23214	48	1.82482	48	1.54321	48	1.33690	48	1.17925	48	1.05485
	49	20.4082	49	6.71141	49	4.01606	49	2.86533	49	2.22717	49	1.82149	49	1.54083	49	1.33511	49	1.17786	49	1.05374
50	50	20.0000	150	6.66667	250	4.00000	350	2.85714	450	2.22222	550	1.81818	650	1.53846	750	1.33333	850	1.17647	950	1.05263
	51	19.6078	51	6.62252	51	3.98406	51	2.84900	51	2.21729	51	1.81488	51	1.53610	51	1.33156	51	1.17509	51	1.05152
	52	19.2308	52	6.57895	52	3.96825	52	2.84091	52	2.21239	52	1.81159	52	1.53374	52	1.32979	52	1.17371	52	1.05042
	53	18.8679	53	6.53595	53	3.95257	53	2.83286	53	2.20751	53	1.80832	53	1.53139	53	1.32802	53	1.17233	53	1.04932
	54	18.5185	54	6.49351	54	3.93701	54	2.82486	54	2.20264	54	1.80505	54	1.52905	54	1.32626	54	1.17096	54	1.04822
	55	18.1818	55	6.45161	55	3.92157	55	2.81690	55	2.19780	55	1.80180	55	1.52672	55	1.32450	55	1.16959	55	1.04713
	56	17.8571	56	6.41026	56	3.90625	56	2.80899	56	2.19298	56	1.79856	56	1.52439	56	1.32275	56	1.16823	56	1.04603
	57	17.5439	57	6.36943	57	3.89105	57	2.80112	57	2.18818	57	1.79533	57	1.52207	57	1.32100	57	1.16686	57	1.04493
	58	17.2414	58	6.32911	58	3.87597	58	2.79330	58	2.18341	58	1.79211	58	1.51976	58	1.31926	58	1.16550	58	1.04384
	59	16.9492	59	6.28931	59	3.86100	59	2.78552	59	2.17865	59	1.78891	59	1.51745	59	1.31752	59	1.16414	59	1.04275
60	60	16.6667	160	6.25000	260	3.84615	360	2.77778	460	2.17391	560	1.78571	660	1.51515	760	1.31579	860	1.16279	960	1.04167
	61	16.3934	61	6.21118	61	3.83142	61	2.77008	61	2.16920	61	1.78253	61	1.51286	61	1.31406	61	1.16144	61	1.04058
	62	16.1290	62	6.17284	62	3.81679	62	2.76243	62	2.16450	62	1.77936	62	1.51057	62	1.31234	62	1.16009	62	1.03950
	63	15.8730	63	6.13497	63	3.80228	63	2.75482	63	2.15983	63	1.77620	63	1.50830	63	1.31062	63	1.15875	63	1.03842
	64	15.6250	64	6.09756	64	3.78788	64	2.74725	64	2.15517	64	1.77305	64	1.50602	64	1.30890	64	1.15741	64	1.03734
	65	15.3846	65	6.06061	65	3.77358	65	2.73973	65	2.15054	65	1.76991	65	1.50376	65	1.30719	65	1.15607	65	1.03627
	66	15.1515	66	6.02410	66	3.75940	66	2.73224	66	2.14592	66	1.76678	66	1.50150	66	1.30548	66	1.15472	66	1.03520
	67	14.9254	67	5.98802	67	3.74532	67	2.72480	67	2.14133	67	1.76367	67	1.49925	67	1.30378	67	1.15340	67	1.03413
	68	14.7059	68	5.95238	68	3.73134	68	2.71739	68	2.13675	68	1.76056	68	1.49701	68	1.30208	68	1.15207	68	1.03306
	69	14.4928	69	5.91716	69	3.71747	69	2.71003	69	2.13220	69	1.75747	69	1.49477	69	1.30039	69	1.15075	69	1.03199
70	70	14.2857	170	5.88235	270	3.70370	370	2.70270	470	2.12766	570	1.75439	670	1.49254	770	1.29870	870	1.14943	970	1.03093
	71	14.0845	71	5.84795	71	3.69004	71	2.69542	71	2.12314	71	1.75131	71	1.49031	71	1.29702	71	1.14811	71	1.02987
	72	13.8889	72	5.81395	72	3.67647	72	2.68817	72	2.11864	72	1.74825	72	1.48810	72	1.29534	72	1.14679	72	1.02881
	73	13.6986	73	5.78035	73	3.66300	73	2.68097	73	2.11416	73	1.74520	73	1.48588	73	1.29366	73	1.14548	73	1.02775
	74	13.5135	74	5.74713	74	3.64964	74	2.67380	74	2.10970	74	1.74216	74	1.48368	74	1.29199	74	1.14416	74	1.02669
	75	13.3333	75	5.71429	75	3.63636	75	2.66667	75	2.10526	75	1.73913	75	1.48148	75	1.29032	75	1.14286	75	1.02564
	76	13.1579	76	5.68182	76	3.62319	76	2.65957	76	2.10084	76	1.73611	76	1.47929	76	1.28866	76	1.14155	76	1.02459
	77	12.9870	77	5.64972	77	3.61011	77	2.65252	77	2.09644	77	1.73310	77	1.47710	77	1.28700	77	1.14025	77	1.02354
	78	12.8205	78	5.61798	78	3.59712	78	2.64550	78	2.09205	78	1.73010	78	1.47493	78	1.28535	78	1.13895	78	1.02249
	79	12.6582	79	5.58659	79	3.58423	79	2.63852	79	2.08768	79	1.72712	79	1.47275	79	1.28370	79	1.13766	79	1.02145
80	80	12.5000	180	5.55556	280	3.57143	380	2.63158	480	2.08333	580	1.72414	680	1.47059	780	1.28205	880	1.13636	980	1.02041
	81	12.3457	81	5.52486	81	3.55872	81	2.62467	81	2.07900	81	1.72117	81	1.46843	81	1.28041	81	1.13507	81	1.01937
	82	12.1951	82	5.49451	82	3.54610	82	2.61780	82	2.07469	82	1.71821	82	1.46628	82	1.27877	82	1.13379	82	1.01833
	83	12.0482	83	5.46448	83	3.53357	83	2.61097	83	2.07039	83	1.71527	83	1.46413	83	1.27714	83	1.13250	83	1.01729
	84	11.9048	84	5.43478	84	3.52113	84	2.60417	84	2.06612	84	1.71233	84	1.46199	84	1.27551	84	1.13122	84	1.01626
	85	11.7647	85	5.40541	85	3.50877	85	2.59740	85	2.06186	85	1.70940	85	1.45985	85	1.27389	85	1.12994	85	1.01523
	86	11.6279	86	5.37634	86	3.49650	86	2.59067	86	2.05761	86	1.70648	86	1.45773	86	1.27226	86	1.12867	86	1.01420
	87	11.4943	87	5.34759	87	3.48432	87	2.58398	87	2.05339	87	1.70358	87	1.45560	87	1.27065	87	1.12740	87	1.01317
	88	11.3636	88	5.31915	88	3.47222	88	2.57732	88	2.04918	88	1.70068	88	1.45349	88	1.26904	88	1.12613	88	1.01215
	89	11.2360	89	5.29101	89	3.46021	89	2.57069	89	2.04499	89	1.69779	89	1.45138	89	1.26743	89	1.12486	89	1.01112
90	90	11.1111	190	5.26316	290	3.44828	390	2.56410	490	2.04082	590	1.69492	690	1.44928	790	1.26582	890	1.12360	990	1.01010
	91	10.9890	91	5.23560	91	3.43643	91	2.55754	91	2.03666	91	1.69205	91	1.44718	91	1.26422	91	1.12233	91	1.00908
	92	10.8696	92	5.20833	92	3.42466	92	2.55102	92	2.03252	92	1.68919	92	1.44509	92	1.26263	92	1.12108	92	1.00806
	93	10.7527	93	5.18135	93	3.41297	93	2.54453	93	2.02840	93	1.68634	93	1.44300	93	1.26103	93	1.11982	93	1.00705
	94	10.6383	94	5.15464	94	3.40136	94	2.53807	94	2.02429	94	1.68350	94	1.44092	94	1.25945	94	1.11857	94	1.00604
	95	10.5263	95	5.12821	95	3.38983	95	2.53165	95	2.02020	95	1.68067	95	1.43885	95	1.25786	95	1.11732	95	1.00503
	96	10.4167	96	5.10204	96	3.37838	96	2.52525	96	2.01613	96	1.67785	96	1.43678	96	1.25628	96	1.11607	96	1.00402
	97	10.3093	97	5.07614	97	3.36700	97	2.51889	97	2.01207	97	1.67504	97	1.43472	97	1.25471	97	1.11483	97	1.00301
	98	10.2041	98	5.05051	98	3.35570	98	2.51256	98	2.00803	98	1.67224	98	1.43266	98	1.25313	98	1.11359	98	1.00200
	99	10.1010	99	5.02513	99	3.34448	99	2.50627	99	2.00401	99	1.66945	99	1.43062	99	1.25156	99	1.11235	99	1.00100

COMPTOMETER RECIPROCAL TABLE—Continued

1001 to 2000

		1100		1200		1300		1400		1500		1600		1700		1800		1900	
	1001	.99900	1100	.90909	1200	.83333	1300	.76923	1400	.71429	1500	.66667	1600	.62500	1700	.58824	1800	.55556	1900	.52632
	1002	.99800	1101	.90827	1201	.83264	1301	.76864	1401	.71378	1501	.66622	1601	.62461	1701	.58789	1801	.55525	1901	.52604
	1003	.99701	1102	.90744	1202	.83195	1302	.76805	1402	.71327	1502	.66578	1602	.62422	1702	.58754	1802	.55494	1902	.52576
	1004	.99602	1103	.90662	1203	.83126	1303	.76746	1403	.71276	1503	.66534	1603	.62383	1703	.58720	1803	.55463	1903	.52549
	1005	.99502	1104	.90580	1204	.83056	1304	.76687	1404	.71225	1504	.66489	1604	.62344	1704	.58685	1804	.55432	1904	.52521
	1006	.99404	1105	.90498	1205	.82988	1305	.76628	1405	.71174	1505	.66445	1605	.62305	1705	.58651	1805	.55402	1905	.52493
	1007	.99305	1106	.90416	1206	.82919	1306	.76570	1406	.71124	1506	.66401	1606	.62267	1706	.58617	1806	.55371	1906	.52466
	1008	.99206	1107	.90334	1207	.82850	1307	.76511	1407	.71073	1507	.66357	1607	.62228	1707	.58582	1807	.55340	1907	.52438
	1009	.99108	1108	.90253	1208	.82781	1308	.76453	1408	.71023	1508	.66313	1608	.62189	1708	.58548	1808	.55310	1908	.52411
10	1010	.99010	1109	.90171	1209	.82713	1309	.76394	1409	.70972	1509	.66269	1609	.62150	1709	.58514	1809	.55279	1909	.52383
	1011	.98912	1110	.90090	1210	.82645	1310	.76336	1410	.70922	1510	.66225	1610	.62112	1710	.58480	1810	.55249	1910	.52356
	1012	.98814	1111	.90009	1211	.82576	1311	.76278	1411	.70872	1511	.66181	1611	.62073	1711	.58445	1811	.55218	1911	.52329
	1013	.98717	1112	.89928	1212	.82508	1312	.76220	1412	.70822	1512	.66138	1612	.62035	1712	.58411	1812	.55188	1912	.52301
	1014	.98619	1113	.89847	1213	.82440	1313	.76161	1413	.70771	1513	.66094	1613	.61996	1713	.58377	1813	.55157	1913	.52274
	1015	.98522	1114	.89767	1214	.82372	1314	.76104	1414	.70721	1514	.66050	1614	.61958	1714	.58343	1814	.55127	1914	.52247
	1016	.98425	1115	.89686	1215	.82305	1315	.76046	1415	.70671	1515	.66007	1615	.61920	1715	.58309	1815	.55096	1915	.52219
	1017	.98328	1116	.89606	1216	.82237	1316	.75988	1416	.70621	1516	.65963	1616	.61881	1716	.58275	1816	.55066	1916	.52192
	1018	.98232	1117	.89526	1217	.82169	1317	.75930	1417	.70572	1517	.65920	1617	.61843	1717	.58241	1817	.55036	1917	.52165
	1019	.98135	1118	.89445	1218	.82102	1318	.75873	1418	.70522	1518	.65876	1618	.61805	1718	.58207	1818	.55006	1918	.52138
20	1020	.98039	1119	.89366	1219	.82034	1319	.75815	1419	.70472	1519	.65833	1619	.61767	1719	.58173	1819	.54975	1919	.52110
	1021	.97943	1120	.89286	1220	.81967	1320	.75758	1420	.70423	1520	.65789	1620	.61728	1720	.58140	1820	.54945	1920	.52083
	1022	.97847	1121	.89206	1221	.81900	1321	.75700	1421	.70373	1521	.65746	1621	.61690	1721	.58106	1821	.54915	1921	.52056
	1023	.97752	1122	.89127	1222	.81833	1322	.75643	1422	.70323	1522	.65703	1622	.61652	1722	.58072	1822	.54885	1922	.52029
	1024	.97656	1123	.89047	1223	.81766	1323	.75586	1423	.70274	1523	.65660	1623	.61614	1723	.58038	1823	.54855	1923	.52002
	1025	.97561	1124	.88968	1224	.81699	1324	.75529	1424	.70225	1524	.65617	1624	.61576	1724	.58005	1824	.54825	1924	.51975
	1026	.97466	1125	.88889	1225	.81633	1325	.75472	1425	.70175	1525	.65574	1625	.61538	1725	.57971	1825	.54795	1925	.51948
	1027	.97371	1126	.88810	1226	.81566	1326	.75415	1426	.70126	1526	.65531	1626	.61501	1726	.57937	1826	.54765	1926	.51921
	1028	.97276	1127	.88731	1227	.81500	1327	.75358	1427	.70077	1527	.65488	1627	.61463	1727	.57904	1827	.54735	1927	.51894
	1029	.97182	1128	.88652	1228	.81433	1328	.75301	1428	.70028	1528	.65445	1628	.61425	1728	.57870	1828	.54705	1928	.51867
30	1030	.97087	1129	.88574	1229	.81367	1329	.75245	1429	.69979	1529	.65402	1629	.61387	1729	.57837	1829	.54675	1929	.51840
	1031	.96993	1130	.88496	1230	.81301	1330	.75188	1430	.69930	1530	.65359	1630	.61350	1730	.57803	1830	.54645	1930	.51813
	1032	.96899	1131	.88417	1231	.81235	1331	.75131	1431	.69881	1531	.65317	1631	.61312	1731	.57770	1831	.54615	1931	.51787
	1033	.96805	1132	.88339	1232	.81169	1332	.75075	1432	.69832	1532	.65274	1632	.61275	1732	.57737	1832	.54585	1932	.51760
	1034	.96712	1133	.88261	1233	.81103	1333	.75019	1433	.69784	1533	.65232	1633	.61237	1733	.57703	1833	.54555	1933	.51733
	1035	.96618	1134	.88183	1234	.81037	1334	.74963	1434	.69735	1534	.65189	1634	.61200	1734	.57670	1834	.54526	1934	.51706
	1036	.96525	1135	.88106	1235	.80972	1335	.74906	1435	.69686	1535	.65147	1635	.61162	1735	.57637	1835	.54496	1935	.51680
	1037	.96432	1136	.88028	1236	.80906	1336	.74850	1436	.69638	1536	.65104	1636	.61125	1736	.57604	1836	.54466	1936	.51653
	1038	.96339	1137	.87951	1237	.80841	1337	.74794	1437	.69589	1537	.65062	1637	.61087	1737	.57571	1837	.54437	1937	.51626
	1039	.96246	1138	.87873	1238	.80775	1338	.74738	1438	.69541	1538	.65020	1638	.61050	1738	.57537	1838	.54407	1938	.51600
40	1040	.96154	1139	.87796	1239	.80710	1339	.74683	1439	.69493	1539	.64977	1639	.61013	1739	.57504	1839	.54377	1939	.51573
	1041	.96061	1140	.87719	1240	.80645	1340	.74627	1440	.69444	1540	.64935	1640	.60976	1740	.57471	1840	.54348	1940	.51546
	1042	.95969	1141	.87642	1241	.80580	1341	.74571	1441	.69396	1541	.64893	1641	.60938	1741	.57438	1841	.54318	1941	.51520
	1043	.95877	1142	.87566	1242	.80515	1342	.74516	1442	.69348	1542	.64851	1642	.60901	1742	.57405	1842	.54289	1942	.51493
	1044	.95785	1143	.87489	1243	.80451	1343	.74460	1443	.69300	1543	.64809	1643	.60864	1743	.57372	1843	.54259	1943	.51467
	1045	.95694	1144	.87413	1244	.80386	1344	.74405	1444	.69252	1544	.64767	1644	.60827	1744	.57339	1844	.54230	1944	.51440
	1046	.95602	1145	.87336	1245	.80321	1345	.74349	1445	.69204	1545	.64725	1645	.60790	1745	.57307	1845	.54201	1945	.51414
	1047	.95511	1146	.87260	1246	.80257	1346	.74294	1446	.69156	1546	.64683	1646	.60753	1746	.57274	1846	.54171	1946	.51387
	1048	.95420	1147	.87184	1247	.80192	1347	.74239	1447	.69108	1547	.64641	1647	.60716	1747	.57241	1847	.54142	1947	.51361
	1049	.95329	1148	.87108	1248	.80128	1348	.74184	1448	.69061	1548	.64599	1648	.60680	1748	.57208	1848	.54113	1948	.51335
50	1050	.95238	1149	.87032	1249	.80064	1349	.74129	1449	.69013	1549	.64558	1649	.60643	1749	.57176	1849	.54083	1949	.51308
	1051	.95147	1150	.86957	1250	.80000	1350	.74074	1450	.68966	1550	.64516	1650	.60606	1750	.57143	1850	.54054	1950	.51282
	1052	.95057	1151	.86881	1251	.79936	1351	.74019	1451	.68918	1551	.64475	1651	.60569	1751	.57110	1851	.54025	1951	.51256
	1053	.94967	1152	.86806	1252	.79872	1352	.73964	1452	.68871	1552	.64433	1652	.60533	1752	.57078	1852	.53996	1952	.51230
	1054	.94877	1153	.86730	1253	.79808	1353	.73910	1453	.68823	1553	.64392	1653	.60496	1753	.57045	1853	.53967	1953	.51203
	1055	.94787	1154	.86655	1254	.79745	1354	.73855	1454	.68776	1554	.64350	1654	.60459	1754	.57013	1854	.53937	1954	.51177
	1056	.94697	1155	.86580	1255	.79681	1355	.73801	1455	.68729	1555	.64309	1655	.60423	1755	.56980	1855	.53908	1955	.51151
	1057	.94607	1156	.86505	1256	.79618	1356	.73746	1456	.68681	1556	.64267	1656	.60386	1756	.56948	1856	.53879	1956	.51125
	1058	.94518	1157	.86430	1257	.79554	1357	.73692	1457	.68634	1557	.64226	1657	.60350	1757	.56915	1857	.53850	1957	.51099
	1059	.94429	1158	.86355	1258	.79491	1358	.73638	1458	.68587	1558	.64185	1658	.60314	1758	.56883	1858	.53821	1958	.51073
60	1060	.94340	1159	.86281	1259	.79428	1359	.73584	1459	.68540	1559	.64144	1659	.60277	1759	.56850	1859	.53792	1959	.51046
	1061	.94251	1160	.86207	1260	.79365	1360	.73529	1460	.68493	1560	.64103	1660	.60241	1760	.56818	1860	.53763	1960	.51020
	1062	.94162	1161	.86133	1261	.79302	1361	.73475	1461	.68446	1561	.64061	1661	.60205	1761	.56786	1861	.53735	1961	.50994
	1063	.94073	1162	.86059	1262	.79239	1362	.73421	1462	.68399	1562	.64020	1662	.60168	1762	.56754	1862	.53706	1962	.50968
	1064	.93985	1163	.85985	1263	.79177	1363	.73368	1463	.68353	1563	.63980	1663	.60132	1763	.56721	1863	.53677	1963	.50942
	1065	.93897	1164	.85911	1264	.79114	1364	.73314	1464	.68306	1564	.63939	1664	.60096	1764	.56689	1864	.53648	1964	.50916
	1066	.93809	1165	.85837	1265	.79051	1365	.73260	1465	.68259	1565	.63898	1665	.60060	1765	.56657	1865	.53619	1965	.50891
	1067	.93721	1166	.85763	1266	.78989	1366	.73206	1466	.68213	1566	.63857	1666	.60024	1766	.56625	1836	.53591	1966	.50865
	1068	.93633	1167	.85690	1267	.78927	1367	.73153	1467	.68166	1567	.63816	1667	.59988	1767	.56593	1867	.53562	1967	.50839
	1069	.93545	1168	.85616	1268	.78864	1368	.73099	1468	.68120	1568	.63776	1668	.59952	1768	.56561	1868	.53533	1968	.50813
70	1070	.93458	1169	.85543	1269	.78802	1369	.73046	1469	.68074	1569	.63735	1669	.59916	1769	.56529	1869	.53505	1969	.50787
	1071	.93371	1170	.85470	1270	.78740	1370	.72993	1470	.68027	1570	.63694	1670	.59880	1770	.56497	1870	.53476	1970	.50761
	1072	.93284	1171	.85397	1271	.78678	1371	.72939	1471	.67981	1571	.63654	1671	.59844	1771	.56465	1871	.53447	1971	.50736
	1073	.93197	1172	.85324	1272	.78616	1372	.72886	1472	.67935	1572	.63613	1672	.59809	1772	.56433	1872	.53419	1972	.50710
	1074	.93110	1173	.85251	1273	.78555	1373	.72833	1473	.67889	1573	.63573	1673	.59773	1773	.56402	1873	.53390	1973	.50684
	1075	.93023	1174	.85179	1274	.78493	1374	.72780	1474	.67843	1574	.63532	1674	.59737	1774	.56370	1874	.53362	1974	.50659
	1076	.92937	1175	.85106	1275	.78431	1375	.72727	1475	.67797	1575	.63492	1675	.59701	1775	.56338	1875	.53333	1975	.50633
	1077	.92851	1176	.85034	1276	.78370	1376	.72674	1476	.67751	1576	.63452	1676	.59666	1776	.56306	1876	.53305	1976	.50607
	1078	.92764	1177	.84962	1277	.78309	1377	.72622	1477	.67705	1577	.63412	1677	.59630	1777	.56275	1877	.53277	1977	.50582
	1079	.92678	1178	.84890	1278	.78247	1378	.72569	1478	.67659	1578	.63371	1678	.59595	1778	.56243	1878	.53248	1978	.50556
80	1080	.92593	1179	.84818	1279	.78186	1379	.72516	1479	.67613	1579	.63331	1679	.59559	1779	.56211	1879	.53220	1979	.50531
	1081	.92507	1180	.84746	1280	.78125	1380	.72464	1480	.67568	1580	.63291	1680	.59524	1780	.56180	1880	.53191	1980	.50505
	1082	.92421	1181	.84674	1281	.78064	1381	.72411	1481	.67522	1581	.63251	1681	.59488	1781	.56148	1881	.53163	1981	.50480
	1083	.92336	1182	.84602	1282	.78003	1382	.72359	1482	.67476	1582	.63211	1682	.59453	1782	.56117	1882	.53135	1982	.50454
	1084	.92251	1183	.84531	1283	.77942	1383	.72307	1483	.67431	1583	.63171	1683	.59418	1783	.56085	1883	.53107	1983	.50429
	1085	.92166	1184	.84459	1284	.77882	1384	.72254	1484	.67385	1584	.63131	1684	.59382	1784	.56054	1884	.53079	1984	.50403
	1086	.92081	1185	.84388	1285	.77821	1385	.72202	1485	.67340	1585	.63091	1685	.59347	1785	.56022	1885	.53050	1985	.50378
	1087	.91996	1186	.84317	1286	.77760	1386	.72150	1486	.67295	1586	.63052	1686	.59312	1786	.55991	1886	.53022	1986	.50352
	1088	.91912	1187	.84246	1287	.77700	1387	.72098	1487	.67249	1587	.63012	1687	.59277	1787	.55960	1887	.52994	1987	.50327
	1089	.91827	1188	.84175	1288	.77640	1388	.72046	1488	.67204	1588	.62972	1688	.59242	1788	.55928	1888	.52966	1988	.50302
90	1090	.91743	1189	.84104	1289	.77580	1389	.71994	1489	.67159	1589	.62933	1689	.59207	1789	.55897	1889	.52938	1989	.50277
	1091	.91659	1190	.84034	1290	.77519	1390	.71942	1490	.67114	1590	.62893	1690	.59172	1790	.55866	1890	.52910	1990	.50251
	1092	.91575	1191	.83963	1291	.77459	1391	.71891	1491	.67069	1591	.62854	1691	.59137	1791	.55835	1891	.52882	1991	.50226
	1093	.91491	1192	.83893	1292	.77399	1392	.71839	1492	.67024	1592	.62814	1692	.59102	1792	.55804	1892	.52854	1992	.50201
	1094	.91408	1193	.83822	1293	.77340	1393	.71788	1493	.66979	1593	.62775	1693	.59067	1793	.55772	1893	.52826	1993	.50176
	1095	.91324	1194	.83752	1294	.77280	1394	.71736	1494	.66934	1594	.62735	1694	.59032	1794	.55741	1894	.52798	1994	.50150
	1096	.91241	1195	.83682	1295	.77220	1395	.71685	1495	.66890	1595	.62696	1695	.58997	1795	.55710	1895	.52770	1995	.50125
	1097	.91158	1196	.83612	1296	.77160	1396	.71633	1496	.66845	1596	.62657	1696	.58962	1796	.55679	1896	.52743	1996	.50100
	1098	.91075	1197	.83542	1297	.77101	1397	.71582	1497	.66800	1597	.62617	1697	.58928	1797	.55648	1897	.52715	1997	.50075
	1099	.90992	1198	.83472	1298	.77042	1398	.71531	1498	.66756	1598	.62578	1698	.58893	1798	.55617	1898	.52687	1998	.50050
			1199	.83403	1299	.76982	1399	.71480	1499	.66711	1599	.62539	1699	.58858	1799	.55586	1899	.52659	1999	.50025

Decimal Equivalents of Fractions

3rds		4ths		5ths		6ths		7ths		8ths		9ths	
1	.3333	1	.25	1	.2	1	.1667	1	.1429	1	.125	1	.1111
2	.6667	2	.5	2	.4	2	.3333	2	.2857	2	.25	2	.2222
		3	.75	3	.6	3	.5	3	.4286	3	.375	3	.3333
				4	.8	4	.6667	4	.5714	4	.5	4	.4444
						5	.8333	5	.7143	5	.625	5	.5556
								6	.8571	6	.75	6	.6667
										7	.875	7	.7778
												8	.8889

10ths		12ths		16ths		32nds				64ths					
1	.1	1	.0833	1	.0625	1	.03125	17	.53125	1	.0156	22	.3438	43	.6719
2	.2	2	.1667	2	.125	2	.0625	18	.5625	2	.0313	23	.3594	44	.6875
3	.3	3	.25	3	.1875	3	.09375	19	.59375	3	.0469	24	.375	45	.7031
4	.4	4	.3333	4	.25	4	.125	20	.625	4	.0625	25	.3906	46	.7188
5	.5	5	.4167	5	.3125	5	.15625	21	.65625	5	.0781	26	.4063	47	.7344
6	.6	6	.5	6	.375	6	.1875	22	.6875	6	.0938	27	.4219	48	.75
7	.7	7	.5833	7	.4375	7	.21875	23	.71875	7	.1094	28	.4375	49	.7656
8	.8	8	.6667	8	.5	8	.25	24	.75	8	.125	29	.4531	50	.7813
9	.9	9	.75	9	.5625	9	.28125	25	.78125	9	.1406	30	.4688	51	.7969
		10	.8333	10	.625	10	.3125	26	.8125	10	.1563	31	.4844	52	.8125
		11	.9167	11	.6875	11	.34375	27	.84375	11	.1719	32	.5	53	.8281
				12	.75	12	.375	28	.875	12	.1875	33	.5156	54	.8438
				13	.8125	13	.40625	29	.90625	13	.2031	34	.5313	55	.8594
				14	.875	14	.4375	30	.9375	14	.2188	35	.5469	56	.875
				15	.9375	15	.46875	31	.96875	15	.2344	36	.5625	57	.8906
						16	.5			16	.25	37	.5781	58	.9063
										17	.2656	38	.5938	59	.9219
										18	.2813	39	.6094	60	.9375
										19	.2969	40	.625	61	.9531
										20	.3125	41	.6406	62	.9688
										21	.3281	42	.6563	63	.9844

Decimal Equivalent for Each Fractional Part of a Gross and for Each 144th

		DOZENS 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Singles		12 .0833	24 .1667	36 .2500	48 .3333	60 .4167	72 .5000	84 .5833	96 .6667	108 .7500	120 .8333	132 .9167
1	1 .0069	13 **1-1** .0903	25 **2-1** .1736	37 **3-1** .2569	49 **4-1** .3403	61 **5-1** .4236	73 **6-1** .5069	85 **7-1** .5903	97 **8-1** .6736	109 **9-1** .7569	121 **10-1** .8403	133 **11-1** .9236
2	2 .0139	14 **1-2** .0972	26 **2-2** .1806	38 **3-2** .2639	50 **4-2** .3472	62 **5-2** .4306	74 **6-2** .5139	86 **7-2** .5972	98 **8-2** .6806	110 **9-2** .7639	122 **10-2** .8472	134 **11-2** .9306
3	3 .0208	15 **1-3** .1042	27 **2-3** .1875	39 **3-3** .2708	51 **4-3** .3542	63 **5-3** .4375	75 **6-3** .5208	87 **7-3** .6042	99 **8-3** .6875	111 **9-3** .7708	123 **10-3** .8542	135 **11-3** .9375
4	4 .0278	16 **1-4** .1111	28 **2-4** .1944	40 **3-4** .2778	52 **4-4** .3611	64 **5-4** .4444	76 **6-4** .5278	88 **7-4** .6111	100 **8-4** .6944	112 **9-4** .7778	124 **10-4** .8611	136 **11-4** .9444
5	5 .0347	17 **1-5** .1181	29 **2-5** .2014	41 **3-5** .2847	53 **4-5** .3681	65 **5-5** .4514	77 **6-5** .5347	89 **7-5** .6181	101 **8-5** .7014	113 **9-5** .7847	125 **10-5** .8681	137 **11-5** .9514
6	6 .0417	18 **1-6** .1250	30 **2-6** .2083	42 **3-6** .2917	54 **4-6** .3750	66 **5-6** .4583	78 **6-6** .5417	90 **7-6** .6250	102 **8-6** .7083	114 **9-6** .7917	126 **10-6** .8750	138 **11-6** .9583
7	7 .0486	19 **1-7** .1319	31 **2-7** .2153	43 **3-7** .2986	55 **4-7** .3819	67 **5-7** .4653	79 **6-7** .5486	91 **7-7** .6319	103 **8-7** .7153	115 **9-7** .7986	127 **10-7** .8819	139 **11-7** .9653
8	8 .0556	20 **1-8** .1389	32 **2-8** .2222	44 **3-8** .3056	56 **4-8** .3889	68 **5-8** .4722	80 **6-8** .5556	92 **7-8** .6389	104 **8-8** .7222	116 **9-8** .8056	128 **10-8** .8889	140 **11-8** .9722
9	9 .0625	21 **1-9** .1458	33 **2-9** .2292	45 **3-9** .3125	57 **4-9** .3958	69 **5-9** .4792	81 **6-9** .5625	93 **7-9** .6358	105 **8-9** .7292	117 **9-9** .8125	129 **10-9** .8958	141 **11-9** .9792
10	10 .0694	22 **1-10** .1528	34 **2-10** .2361	46 **3-10** .3194	58 **4-10** .4028	70 **5-10** .4861	82 **6-10** .5694	94 **7-10** .6528	106 **8-10** .7361	118 **9-10** .8194	130 **10-10** .9028	142 **11-10** .9861
11	11 .0764	23 **1-11** .1597	35 **2-11** .2431	47 **3-11** .3264	59 **4-11** .4097	71 **5-11** .4931	83 **6-11** .5764	95 **7-11** .6597	107 **8-11** .7431	119 **9-11** .8264	131 **10-11** .9097	143 **11-11** .9930

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