

THE JAPANESE ABACUS, ITS USE AND THEORY

BY TAKASHI KOJIMA



Exercises

Constant daily practice is essential if one is to become proficient in the use of the abacus. The following exercises, prepared and arranged in accordance with the most up-to-date methods, have been kindly furnished by Professor Miyokichi Ban, an outstanding abacus authority. They will provide a good beginning for the serious student, who can then find more problems in any ordinary arithmetic book. Also note that problems in multiplication and division may be used as problems in addition and subtraction respectively.

The exercises are arranged so that a student can measure his progress against the yardstick of the Japanese licensing system, the required standard of proficiency for the particular grade being given at the beginning of each group. The possessor of a first, second or third grade license, as awarded by the Abacus Committee, is officially qualified for employment in a public corporation or business house. Licenses for the lower grades are given on the basis of unofficial examinations conducted by numerous private abacus schools.

The exercises are also chosen to give the maximum of variety to the problems, with each digit from zero to nine receiving equal attention -an essential requirement for improvement in abacus operation. The system followed is that just initiated by the Central Abacus Committee after long and careful research.

I -Sixth Grade Operator

Group A

(1 set per minute, or entire group with 70% accuracy in 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
528	967	482	106	815	360	769	241	654	185
160	239	251	543	302	829	420	952	516	730
427	650	147	928	491	213	195	309	740	698
951	108	598	710	852	308	-513	756	495	246
719	243	120	954	-169	497	-854	487	536	809
452	758	-643	329	-401	932	508	360	-785	953
106	491	-839	267	-958	589	274	617	-320	721
843	536	304	695	576	690	421	508	-197	370
385	702	987	514	740	147	963	873	201	617
690	871	439	870	183	674	-307	420	873	164
724	460	-671	308	-235	850	-631	196	124	902
381	629	-305	796	-673	201	-175	689	-482	596
203	984	-526	632	340	765	286	204	-968	480
579	315	760	807	927	148	840	795	319	342
<u>634</u>	<u>870</u>	<u>215</u>	<u>481</u>	<u>264</u>	<u>756</u>	<u>392</u>	<u>138</u>	<u>203</u>	<u>875</u>
7 782	8 823	1 319	8 940	3 054	7 959	2 588	7 545	1 909	8 688

Group B

(1 set per minute or entire group with 70% accuracy in 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
728	36	627	52	271	13	806	4 105	936	3 094
631	87	75	718	6 104	624	54	78	21	65
4 089	52	238	60	42	51	-716	29	6 084	413
50	705	-94	42	35	379	-81	712	-18	817
92	68	-426	8 096	487	785	439	67	-745	23
175	96	-81	621	93	41	5 021	834	-50	71
47	349	7 513	97	312	2 095	48	203	62	938
904	2 138	59	481	-78	36	27	40	329	26
72	510	60	305	-5 083	984	-78	526	-1 203	7 041
593	74	-3 041	574	20	63	-3 605	81	-459	86
61	421	-52	85	961	542	-953	9 036	48	259
86	907	139	19	-854	807	130	17	76	95
8 260	53	807	73	-69	1 068	69	395	597	508
354	619	40	9 038	-705	70	92	58	30	672
<u>13</u>	<u>8 042</u>	<u>968</u>	<u>264</u>	<u>96</u>	<u>92</u>	<u>247</u>	<u>649</u>	<u>817</u>	<u>40</u>
16 155	14 157	6 832	20 525	1 632	7 650	1 500	16 830	6 525	14 148

Group C
(70% accuracy, 5 minutes.)

- (1) $187 \times 53 = 9\ 911$
- (2) $245 \times 21 = 5\ 145$
- (3) $309 \times 19 = 5\ 871$
- (4) $408 \times 38 = 15\ 504$
- (5) $561 \times 60 = 33\ 660$
- (6) $620 \times 42 = 26\ 040$
- (7) $716 \times 90 = 64\ 440$
- (8) $832 \times 57 = 47\ 424$
- (9) $954 \times 74 = 70\ 596$
- (10) $973 \times 86 = 83\ 678$

Group E
(70% accuracy, 5 minutes.)

- (1) $960 \div 24 = 40$
- (2) $810 \div 45 = 18$
- (3) $7\ 505 \div 79 = 95$
- (4) $6\ 640 \div 80 = 83$
- (5) $5\ 920 \div 16 = 370$
- (6) $4\ 080 \div 68 = 60$
- (7) $3\ 127 \div 53 = 59$
- (8) $2\ 160 \div 30 = 72$
- (9) $1\ 152 \div 72 = 16$
- (10) $2\ 184 \div 91 = 24$

Group D
(70% accuracy, 5 minutes.)

- (1) $1\ 725 \times 51 = 87\ 975$
- (2) $2\ 698 \times 24 = 64\ 752$
- (3) $3\ 980 \times 30 = 119\ 400$
- (4) $4\ 509 \times 65 = 293\ 085$
- (5) $5\ 062 \times 73 = 369\ 526$
- (6) $6\ 874 \times 68 = 467\ 432$
- (7) $7\ 431 \times 80 = 594\ 480$
- (8) $8\ 146 \times 12 = 97\ 752$
- (9) $9\ 357 \times 49 = 458\ 493$
- (10) $8\ 230 \times 97 = 798\ 310$

Group F
(70% accuracy, 5 minutes.)

- (1) $\yen 986 \div 34 = \yen 29$
- (2) $\yen 855 \div 19 = \yen 45$
- (3) $\yen 7\ 280 \div 80 = \yen 91$
- (4) $\yen 6\ 240 \div 78 = \yen 80$
- (5) $\yen 5\ 092 \div 67 = \yen 76$
- (6) $\yen 4\ 128 \div 96 = \yen 43$
- (7) $\yen 390 \div 13 = \yen 30$
- (8) $\yen 2\ 320 \div 40 = \yen 58$
- (9) $\yen 1\ 550 \div 25 = \yen 62$
- (10) $\yen 884 \div 52 = \yen 17$

II -Fifth Grade Operator

Group A
(70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
425	619	502	7 245	167	895	3 471	912	237	498
839	153	698	461	9 035	7 043	584	463	4 093	6 309
5 302	762	2 013	956	716	509	628	9 324	308	146
791	8 523	147	179	3 540	2 918	309	647	7 410	285
514	-478	9 684	317	295	451	5 672	1 509	-984	5 037
1 283	-694	5 726	420	138	734	491	854	-2 536	708
960	-7 081	409	8 096	869	1 086	-236	6 082	-841	3 572
2 048	377	971	-543	327	427	-7 018	165	965	219
683	1 049	3 056	-835	5 609	308	4 763	978	8 074	867
4 067	812	843	2 684	952	872	517	240	129	421
794	9 235	329	708	4 786	164	902	2 086	715	1 653
3 176	-504	760	1 032	128	6 217	8 059	731	-5 268	820
952	-6 380	4 215	-319	8 073	9 620	-126	3 108	-607	9 046
805	426	837	-908	409	563	-340	597	259	714
<u>671</u>	<u>905</u>	<u>158</u>	<u>-6 527</u>	<u>241</u>	<u>35</u>	<u>-895</u>	<u>375</u>	<u>136</u>	<u>935</u>
23 310	7 724	30 348	12 966	35 285	31 842	16 781	28 071	12 090	31 230

Group B
(70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
3 128	504	196	837	6 059	463	958	7 342	217	592
940	6 142	2 501	7 590	3 240	8 594	149	3 180	1 048	403
8 437	879	385	2 601	918	3 027	4 807	453	9 731	1 780
1 056	-5 263	6 210	9 082	136	-7 380	758	9 508	5 109	6 814
9 582	-198	1 479	-649	2 847	-2 759	3 146	4 261	8 925	509
865	7 920	8 937	-3 078	9 325	-902	6 291	937	-2 346	7 921
5 297	691	7 068	-429	1 706	6 178	530	8 679	-697	2 078
7 809	4 702	927	8 563	695	4 813	2 085	518	7 163	8 637
254	9 087	4 253	930	8 014	632	5 239	6 024	3 508	981
2 375	6 815	5 406	-358	4 587	9 264	7 621	2 187	4 386	3 146
718	3 960	8 045	-1 876	273	850	1 375	9 840	-6 029	4 065
6 042	-1 536	712	-6 145	7 208	1 096	8 407	5 706	-275	8 254
163	-8 473	9 634	7 201	462	-5 709	4 362	695	-5 314	672
4 301	-348	843	5 914	3 159	-641	9 024	1 039	430	5 890
<u>649</u>	<u>2 057</u>	<u>3 521</u>	<u>726</u>	<u>5 341</u>	<u>175</u>	<u>613</u>	<u>726</u>	<u>852</u>	<u>9 763</u>
52 616	26 939	60 117	30 909	53 970	25 701	55 365	61 095	26708	61 505

Group C
(70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
359	9 535	604	413	2 190	4 157	516	8 594	740	1 507
7 569	174	2 895	390	647	823	7 082	250	6 294	960
408	812	731	706	574	496	395	913	103	8 023
163	3 720	1 048	6 054	1 697	273	279	-341	857	649
914	-647	269	318	481	5 082	153	-7 082	5 019	752
792	-1 093	817	8 249	156	761	6 042	361	431	836
5 021	356	4 580	-634	3 078	-845	821	2 473	520	6 395
8 630	2 680	932	-267	423	-3 978	3 150	749	648	548
325	906	126	-9835	310	-109	264	605	3 976	125
206	185	658	142	962	634	4 987	128	837	409
127	-263	9 053	5 061	835	2 014	730	9 086	2 719	287
4 381	-8 472	316	975	5 289	361	674	-597	301	9 168
948	-598	470	-7 529	206	-580	968	-1 632	4 658	314
6 057	704	3 749	-807	4 058	-6 792	401	-805	285	7 431
<u>874</u>	<u>419</u>	<u>527</u>	<u>182</u>	<u>739</u>	<u>905</u>	<u>5 893</u>	<u>467</u>	<u>961</u>	<u>270</u>
36 774	8 418	26 775	3 418	21 645	3 202	32 355	13 169	28 349	37 674

Group D
(70% accuracy 5 minutes.)

- (1) $942 \times 495 = 466\ 290$
- (2) $839 \times 457 = 383\ 423$
- (3) $723 \times 980 = 708\ 540$
- (4) $680 \times 134 = 91\ 120$
- (5) $508 \times 268 = 136\ 144$
- (6) $417 \times 873 = 364\ 041$
- (7) $396 \times 629 = 249\ 084$
- (8) $204 \times 316 = 64\ 464$
- (9) $165 \times 501 = 82\ 665$
- (10) $751 \times 702 = 527\ 202$

Group E
(70% accuracy 5 minutes.)

- (1) $848 \times 276 = 234\ 048$
- (2) $854 \times 965 = 824\ 110$
- (3) $902 \times 804 = 725\ 208$
- (4) $627 \times 108 = 67\ 716$
- (5) $105 \times 519 = 54\ 495$
- (6) $570 \times 843 = 480\ 510$
- (7) $489 \times 751 = 367\ 239$
- (8) $613 \times 397 = 243\ 361$
- (9) $236 \times 632 = 149\ 152$
- (10) $791 \times 420 = 332\ 220$

Group F
(70% accuracy 5 minutes.)

- (1) $9\ 724 / 26 = 374$
- (2) $8\ 151 / 13 = 627$
- (3) $7\ 739 / 71 = 109$
- (4) $62\ 560 / 80 = 782$
- (5) $5\ 556 / 12 = 463$
- (6) $49\ 572 / 54 = 918$
- (7) $30\ 150 / 67 = 450$
- (8) $23\ 128 / 98 = 236$
- (9) $17\ 535 / 35 = 501$
- (10) $43\ 855 / 49 = 895$

Group G
(70% accuracy 5 minutes.)

- (1) $63\ 207 / 90 = 7\ 02.3$
- (2) $533\ 484 / 87 = 6\ 132$
- (3) $420\ 616 / 74 = 5\ 684$
- (4) $113\ 148 / 63 = 1\ 796$
- (5) $278\ 772 / 52 = 5\ 361$
- (6) $85\ 075 / 41 = 2\ 075$
- (7) $366\ 873 / 39 = 9\ 407$
- (8) $98\ 504 / 28 = 3\ 518$
- (9) $72\ 885 / 15 = 4\ 859$
- (10) $214240 / 26 = 8\ 240$

III -Fourth Grade Operator

Group A (70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
6 374	4 561	3 458	9 526	1 459	7 201	2 951	5 482	8 954	6 753
5 021	9 753	2 983	4 198	3 146	6 759	9 160	8 035	4 710	1 832
7 913	3 670	4 120	8 973	4 723	1 093	3 294	4 973	3 986	8 094
9 265	-1 256	6 309	7 269	2 368	2 346	8 643	5 106	5 603	2 869
4 537	-5 904	5 092	9 085	6 912	8 712	-4 712	3 683	9 215	7 150
5 084	8 329	2 148	-6 450	5 279	6 507	-1 035	1 290	5 087	3 908
8 762	2 048	5 871	-8 317	2 905	3 874	-5 368	9 624	1 693	9 201
7 190	6 827	1 397	-3 802	7 816	4 158	7 214	2 067	6 854	4 127
3 856	-7 895	7 539	1 236	3 047	8 527	6 870	6 541	2 401	9 382
4 280	-3 047	2 710	7 084	8 102	4 096	5 907	3 712	-6 049	5 240
8 152	-2 739	6 087	6 735	5 680	3 648	-7 582	6 154	-8 731	8 476
2 409	6 180	8 264	-4 391	9 834	5 930	-4 326	7 298	-3 278	6 395
6 371	5 912	4 675	-5 140	5 091	2 489	8 059	4 870	7 142	7 564
1 948	4 106	9 561	2 604	6 470	1 360	9 781	7 951	9 320	5 013
<u>9 603</u>	<u>1 438</u>	<u>3 406</u>	<u>5 172</u>	<u>7 538</u>	<u>9 125</u>	<u>6 403</u>	<u>8 309</u>	<u>7 562</u>	<u>4 671</u>
90 675	31 983	73 620	33 782	80 370	75 825	45 259	85 095	54 469	90 675

Group B
(70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2 453	5 906	3 629	8 431	9 504	6 712	72 934	1 846	4 165	8 679
5 192	98 710	41 568	7 846	1 029	8 950	1 653	30 782	1 594	15 032
67 941	4 825	9 205	20 753	85 934	4 167	3 817	4 935	3 872	6 985
36 029	5 174	80 453	4 501	2 318	60 843	9 051	8 071	51 943	2 803
1 683	9 631	-2 687	59 327	-7 840	6 679	1 329	6 329	92 381	41 697
4 808	3 712	-31 405	7 698	-43 126	1 703	-53 682	95 874	-6 705	9 306
8 574	20 893	8 716	3 086	-2 735	29 078	-8 306	3 105	-4 372	5 821
3 129	8 074	4 932	64 279	3 052	8 634	-2 148	5 763	-87 156	4 068
48 531	2 689	-17 043	1 058	9 607	39 581	80 597	78 491	9 034	37 459
4 067	60 243	-5 890	6 912	17 269	7 824	5 431	40 982	13 507	2 516
73 215	87 069	-9 134	2 769	8 573	2 307	14 970	2 417	5 420	70 128
2 750	1 574	4 716	90 635	-54 618	40 592	-7 026	7 650	7 263	8 749
10 896	6 458	76 352	5 804	-6 481	91 486	-25 469	63 208	-20 489	3 290
7 208	53 961	2 879	8 140	70 396	6 251	4 205	9 016	-8 016	9 347
<u>9 645</u>	<u>2 307</u>	<u>5 021</u>	<u>1 972</u>	<u>4 125</u>	<u>8 095</u>	<u>6 748</u>	<u>2 569</u>	<u>2 698</u>	<u>60 175</u>
286 121	371 226	171 312	293 211	97 007	322 902	104 104	361 038	65 139	286 055

Group C
(70% accuracy, 10 minutes.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2 701	58 976	378	683	8 472	4 583	75 219	839	13 597	9 218
342	4 109	917	50 746	601	13 659	327	523	763	40 137
60 179	249	4 586	-1 597	7 340	732	139	19 768	27 458	572
9 630	80 651	1 469	-265	45 981	403	-6 875	5 017	89 162	1 065
71 524	1 590	70 854	619	790	29 581	-906	240	430	56 387
8 495	-468	3 042	7 301	13 267	690	50 864	6 754	2 049	941
50 723	-5 107	793	25 478	6 154	32 071	8 542	30 482	-98 625	259
268	-67 328	2 138	9 032	24 896	947	41 038	1 937	-506	7 308
956	782	96 205	-359	974	8 765	-751	684	-4 317	32 596
814	8 245	7 621	-40 168	32 058	1 296	-60 213	93 521	5 231	483
5 209	92 361	5 839	-8 274	613	95 820	-2 496	8 075	70 318	60 725
43 167	873	19 057	63 921	50 789	7 415	9 547	42 816	-2 679	864
1 083	70 934	415	34 580	9 523	178	37 081	7 109	-985	24 139
548	-3 012	80 246	904	862	80 264	320	24 365	6 140	8 074
<u>86 937</u>	<u>-654</u>	<u>8 120</u>	<u>2 817</u>	<u>1 035</u>	<u>6 304</u>	<u>4 693</u>	<u>690</u>	<u>804</u>	<u>1 690</u>
342 576	242 201	361 180	145 418	203 355	282 708	156 529	242 820	108 840	244 458

Group D
(70% accuracy 5 minutes.)

- (1) $92\,854 \times 84 = 7\,799$
- (2) $8\,240 \times 568 = 4\,680$
- (3) $73\,041 \times 90 = 6\,573$
- (4) $60\,378 \times 16 = 966\,048$
- (5) $51\,762 \times 27 = 1\,397$
- (6) $47\,609 \times 70 = 3\,332\,630$
- (7) $30\,427 \times 32 = 973\,664$
- (8) $29\,185 \times 63 = 1\,838$
- (9) $18\,596 \times 45 = 836\,820$
- (10) $54\,930 \times 81 = 4\,449$

Group F
(70% accuracy 5 minutes.)

- (1) $9\,108 \times 379 = 3\,451\,932$
- (2) $8\,240 \times 568 = 4\,680\,320$
- (3) $7\,894 \times 740 = 5\,841\,560$
- (4) $6\,372 \times 953 = 6\,072\,516$
- (5) $5\,423 \times 182 = 986\,986$
- (6) $4\,617 \times 194 = 895\,698$
- (7) $3\,581 \times 807 = 2\,889\,867$
- (8) $2\,056 \times 625 = 1\,285\,000$
- (9) $1\,905 \times 401 = 763\,905$
- (10) $3\,769 \times 236 = 889\,484$

Group H
(70% accuracy 5 minutes.)

- (1) $379\,428 \div 42 = 9\,034$
- (2) $706\,860 \div 85 = 8\,316$
- (3) $235\,662 \div 31 = 7\,602$
- (4) $658\,145 \div 97 = 6\,785$
- (5) $406\,164 \div 68 = 5\,973$
- (6) $87\,362 \div 19 = 4\,598$
- (7) $115\,710 \div 30 = 3\,857$
- (8) $55\,637 \div 23 = 2\,419$
- (9) $94\,240 \div 76 = 1\,240$
- (10) $325\,134 \div 54 = 6\,021$

Group J
(70% accuracy 5 minutes.)

- (1) $636\,768 \div 792 = 804$
- (2) $35\,984 \div 208 = 173$
- (3) $194\,394 \div 537 = 362$
- (4) $403\,425 \div 815 = 495$
- (5) $86\,163 \div 373 = 231$
- (6) $531\,340 \div 620 = 857$
- (7) $932\,832 \div 984 = 948$
- (8) $286\,090 \div 469 = 610$
- (9) $363\,726 \div 501 = 726$
- (10) $74\,314 \div 146 = 509$

Group E
(70% accuracy 5 minutes.)

- (1) $1\,375 \times 562 = 772\,750$
- (2) $2\,610 \times 148 = 386\,280$
- (3) $3\,784 \times 625 = 2\,365\,000$
- (4) $4\,208 \times 201 = 845\,808$
- (5) $5\,429 \times 874 = 4\,744\,946$
- (6) $6\,057 \times 903 = 5\,469\,471$
- (7) $7\,906 \times 417 = 3\,296\,802$
- (8) $8\,591 \times 730 = 6\,271\,430$
- (9) $9\,832 \times 986 = 9\,694\,352$
- (10) $4\,163 \times 359 = 1\,494\,517$

Group G
(70% accuracy 5 minutes.)

- (1) $2\,647 \times 3\,740 = 9\,899\,780$
- (2) $3\,068 \times 2\,698 = 8\,277\,464$
- (3) $9\,854 \times 7\,219 = 71\,136\,026$
- (4) $1\,370 \times 4\,805 = 6\,582\,8508$
- (5) $8\,401 \times 6\,457 = 54\,245\,257$
- (6) $4\,936 \times 9\,523 = 47\,005\,528$
- (7) $6\,125 \times 5\,184 = 31\,752\,000$
- (8) $2\,519 \times 8\,306 = 20\,922\,814$
- (9) $7\,093 \times 1\,962 = 13\,916\,466$
- (10) $5\,782 \times 3\,071 = 17\,756\,522$

Group I
(70% accuracy 5 minutes.)

- (1) $94\,235 \div 401 = 235$
- (2) $87\,040 \div 256 = 340$
- (3) $752\,128 \div 832 = 904$
- (4) $64\,220 \div 380 = 169$
- (5) $548\,784 \div 927 = 592$
- (6) $431\,748 \div 603 = 716$
- (7) $385\,746 \div 478 = 807$
- (8) $219\,537 \div 519 = 423$
- (9) $107\,912 \div 164 = 658$
- (10) $620\,895 \div 795 = 781$

Group K
(70% accuracy 5 minutes.)

- (1) $553\,149 \div 6\,829 = 81$
- (2) $273\,375 \div 3\,645 = 75$
- (3) $97\,351 \div 1\,453 = 67$
- (4) $761\,664 \div 7\,934 = 96$
- (5) $81\,018 \div 4\,501 = 18$
- (6) $84\,942 \div 2\,178 = 39$
- (7) $424\,901 \div 8\,017 = 53$
- (9) $120\,048 \div 5\,002 = 24$
- (9) $611\,640 \div 6\,796 = 90$
- (10) $394\,044 \div 9\,382 = 42$

IV - Third Grade Operators

*Group A
(70% accuracy, 5 minutes.)*

(1)	(2)	(3)	(4)	(5)
8 127	526	105 942	41 306	28 640
659	4 192	835	7 962	135
17 492	60 271	94 516	95 641	86 029
961 037	358 604	62 481	529	401 286
5 208	-963	83 672	890 375	514
638 125	-71 850	1 450	-6 813	37 269
80 734	-5 397	238 107	-380 276	2 478
9 270	409 715	396	784	903 851
25 816	842	740 138	978 250	18 394
401 369	-17 438	253	3 795	549 076
756	-732 609	57 048	12 047	3 702
36 594	90 386	6 729	604 518	153
520 943	6 127	78 915	-421	695 718
481	28 459	406 329	-53 608	4 367
<u>74 308</u>	<u>813 045</u>	<u>9 067</u>	<u>29 134</u>	<u>70 925</u>
2 780 919	943 910	1 885 878	2 164 955	2 802 537
(6)	(7)	(8)	(9)	(10)
350 624	79 328	60 382	952	14 538
93 041	8 653	847	38 207	751
-68 729	184 705	2 415	706 394	26 374
-134	31 894	531	2 460	652 096
791 560	936	891 270	875	8 725
45 287	507 269	63 092	410 936	479 163
2 759	421	-726	9 283	680
59 641	60 584	-308 619	65 148	13 849
-6 358	245 139	-15 974	931 054	804 975
-804 293	372	704 368	729	5 812
-15 807	4 715	-3 051	54 071	30 427
983	693 807	-57 249	13 567	209
7 410	16 042	425 698	6 182	90 412
362	2 610	9 703	207 648	587 936
<u>201 876</u>	<u>80 597</u>	<u>56 184</u>	<u>89 513</u>	<u>3 160</u>
658 222	1 917 072	1 828 871	2 537 019	2 719 107

Group B

(70% accuracy 10 minutes. Calculate problems 1-10 to the nearest thousandth; 11-20 to the nearest dollar.)

- | | | | |
|------|-----------------------------------|------|---------------------------------------|
| (1) | $4\,097 \times 238 = 975\,086$ | (11) | $\$2\,594 \times 376 = \$975\,344$ |
| (2) | $5\,638 \times 149 = 840\,062$ | (12) | $\$4\,608 \times 0.189 = \871 |
| (3) | $14\,902 \times 52 = 774\,904$ | (13) | $\$7\,832 \times 897 = \$7\,025\,304$ |
| (4) | $7\,105 \times 0.098 = 696.29$ | (14) | $\$94\,120 \times 6.4 = \$602\,368$ |
| (5) | $9\,674 \times 603 = 5\,833\,422$ | (15) | $\$8\,029 \times 738 = \$5\,925\,402$ |
| (6) | $63.25 \times 7.64 = 483.23$ | (16) | $\$975 \times 45.12 = \$43\,992$ |
| (7) | $853 \times 4.017 = 3\,426.501$ | (17) | $\$5\,176 \times 0.625 = \$3\,235$ |
| (8) | $0.3081 \times 0.926 = 0.285$ | (18) | $\$3\,061 \times 903 = \$2\,764\,083$ |
| (9) | $2\,984 \times 351 = 1\,047\,384$ | (19) | $\$6\,843 \times 201 = \$1\,375\,443$ |
| (10) | $0.2176 \times 87.5 = 19.04$ | (20) | $\$6\,549 \times 643 = \$4\,211\,007$ |

Group C

(70% accuracy 10 minutes. Calculate problems 1—10 to the nearest thousandth; 11—20 to the nearest dollar.)

- | | | | |
|------|----------------------------|------|------------------------------|
| (1) | $937\,015 / 965 = 971$ | (11) | $\$99 / 0.368 = \269 |
| (2) | $0.08988 / 6.42 = 0.014$ | (12) | $\$83\,619 / 27 = \$3\,097$ |
| (3) | $0.070654 / 0.136 = 0.520$ | (13) | $\$71\,967 / 149 = \483 |
| (4) | $63\,366 / 708 = 89.5$ | (14) | $\$649\,612 / 7\,061 = \92 |
| (5) | $55.426 / 214 = 0.259$ | (15) | $\$560 / 0.875 = \640 |
| (6) | $415\,473 / 591 = 703$ | (16) | $\$415\,693 / 593 = \701 |
| (7) | $315.333 / 45.9 = 6.87$ | (17) | $\$33\,154 / 60.5 = \548 |
| (8) | $280\,932 / 82 = 3\,426$ | (18) | $\$2\,485 / 2.84 = \875 |
| (9) | $17.316 / 0.037 = 468$ | (19) | $\$122\,563 / 901 = \136 |
| (10) | $241\,893 / 7\,803 = 31$ | (20) | $\$54 / 0.432 = \125 |

